

February 12, 2009

Mr. Dan McCaskill, CIH BNSF Railway Company 2600 Lou Menk Drive Fort Worth, TX 76161

Re: Steel Gang Air Monitoring

BNSF OSHA Exposure Sampling Summary Report BNSF Kootenai River Subdivision- Mileposts 1312 to 1341

EPA Operable Unit 6 September 2008

EMR Project No. 5539.120

Dear Mr. McCaskill:

EMR, Inc. (EMR) was contracted by the BNSF Railway Company (BNSF) to conduct Occupational Safety and Health Administration (OSHA) Exposure Sampling on the steel gangs conducting track repair/replacement in the portion of the BNSF right-of-way located in the United States Environmental Protection Agency (EPA)-designated Operable Unit 6 (OU6). OU6 is roughly centered on Libby, Montana (Figure 1). The OSHA Exposure Sampling was conducted simultaneously with an Activity-Based Sampling (ABS) event along the BNSF right-of-way during steel gang track work performed in September 2008.

Though the ABS event was requested by the as part of the EPA Libby Superfund project, the OSHA sampling was conducted on behalf of BNSF industrial hygiene and was not subject to review by EPA or their agent, Camp, Dresser and McKee (CDM), administrators of the Superfund cleanup in Libby. This OSHA Exposure Sampling work was conducted by EMR for BNSF based on potential asbestos (tremolite and related minerals) hazards within track ballast material near the Libby area. The potential hazard consists of the disturbance of previously-deposited asbestos fibers during rail maintenance activities. Asbestos fibers within the track structure are associated with rail transport of W.R. Grace vermiculite ore or processed Zonolite shipped on this line through approximately 1990, the date of the mine closure.

The purpose of the OSHA Exposure Sampling was to gather sufficient, representative data to allow BNSF Industrial Hygiene personnel to ensure that BNSF Maintenance of Way personnel were not being exposed to asbestos concentrations in excess of the Permissible Exposure Level (PEL) and that the Personal Protective Equipment and work practices prescribed by BNSF are sufficient for worker protection.

Methods

The exposure sampling program utilized Gillian BDX II personal air pumps equipped with Zefon 25mm Phase Contrast Microscopy (PCM) cassettes and 0.8 µm Mixed Cellulose Ester (MCE) filters. These cassettes were utilized for both PCM analysis by NIOSH 7400 and Transmission Electron Microscopy (TEM) analysis by the ISO 10312 method. EMR performed all PCM analysis, while TEM analysis was conducted by EMSL's Libby laboratory.

The ISO 10312 method, which was the TEM method used in this evaluation, determines and counts the types(s) of asbestos structures present, but sometimes cannot discriminate between individual fibers of amphibole and non-asbestos analogues of the same amphibole mineral. The method is defined for polycarbonate capillan/pre filters or cellulose ester (either mixed esters of cellulose or cellulose nitrate) filters through which a known volume of air has been drawn. In addition, the method uses "bins" to count structures of various lengths and widths, from 0.5 microns in length and no minimum width. Six bins counting Libby Amphibole (LA), other amphibole (OA), and chrysotile (C) were utilized as follows:

- Bin A: All LA, OA and C fibers with a less than 5:1 length to width aspect ratio
- Bin B: All LA, OA and C fibers with greater than or equal to 5 aspect ratio and length less than 0.5 microns.
- Bin C: All LA, OA and C fibers with greater than or equal to 5 aspect ratio and width less than or equal to 0.5 microns.
- Bin D: All LA, OA and C fibers with greater than or equal to 5 aspect ratio, length between 0.5 and 5 microns and width less than or equal to 0.5 microns.
- Bin E: All LA, OA and C fibers with greater than or equal to 5 aspect ratio, length between 5 and 10 microns and width less than or equal to 0.5 microns.
- Bin F: All LA, OA and C fibers with greater than or equal to 5 aspect ratio, length greater than 10 microns and width less than or equal to 0.5 microns.

On Site Personnel

A team of four EMR employees were selected to implement the ABS Sampling and Analysis Plan (SAP). The team consisted of John Starr, Matt Lenz, Amanda Thornton-DeWitt and David Welch. The primary responsibilities of the team were as follows:

John Starr – responsible for conducting personal air monitoring and Phase Contrast Microscopy (PCM) analysis of air samples collected from the BNSF steel gang crews and for delivery of air cassettes to EMSL's Libby laboratory for AHERA TEM analysis and setup and movement of air sampling equipment.

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Dave Welch - responsible for overall field operations; conduct daily tailgate safety meetings; responsible for all ABS soil sampling activity and data sheets; review of ABS Air Data Sheets; assisted in getting personal pumps attached to BNSF personnel and setup and movement of air sampling equipment.

Matt Lenz - responsible for overall ABS air monitoring activities and datasheets for EPA review; responsible for setting up and tearing down weather station each work shift, downloading weather data each day from weather station.

Amanda Thornton-DeWitt - responsible for overall field records/field notes for ABS program, assisted in setting up and tearing down weather station each work shift and assisted in ABS datasheet preparation.

Other on-site personnel included Scott Carney, Laura Trozzolo and Nicole Bein. Scott Carney, EMR Project Manager, was on site for the first several days of the project to ensure all operations were initiated according to SAP. Laura Trozzolo, of ENSR/AECOM, the author of the SAP also was on site for several days to ensure EMR's complete understanding and execution of the work plan. Nicole Bein, the CDM representative, was on-site to observe work activities on behalf of EPA.

Sampling Overview

EMR mobilized to Libby, Montana on September 15th to perform the ABS and OSHA sampling activities outlined in the SAP, which was submitted to the EPA in September 2008. On September 16th, the EMR sampling team attended a CDM training session regarding the Libby-specific sampling techniques. EMR commenced with OSHA and ABS sampling on September 17, 2008. EMR conducted sampling associated with the RP-15 gang between September 17 and September 22 and on September 25. Sampling was conducted with RP-21 on September 23 and 24. Project activities concluded on September 25, 2008. A total of seven (7) days of OSHA exposure sampling were conducted during BNSF steel gang work in the area.

All of BNSF's work using steel gangs RP-15 and RP-21 was related to track replacement and/or repair of mainline or siding tracks along the right-of-way east and west of Libby, Montana within OU6. All of the work required track protection, which was conducted by BNSF steel gang roadmasters or their supervisors using a Form B or "track and time". The RP-15 gang roadmaster was Mr. Rock LaSorte, the RP-21 gang roadmaster was Mr. Chad Gohman. Because the ABS program did not allow water to be used in order to best represent potential trespasser exposure, no water trucks were used to wet the track bed down prior to air sampling. The crews were consistent regarding wearing of tyvek suits for dermal protection during the work activity but the wearing of respiratory protection was sporadic.

The following is a daily summary of OSHA exposure sampling activities from September 17 to September 25, 2008. Attached are site location maps, photolog of work activities (Attachment A), air monitoring data sheets with PCM air monitoring results (Attachment B), and TEM results and chain of custody forms from EMSL laboratory (Attachment B). Figure 1 shows an overview of the BNSF track right-of-way within OU6 that extends west from MP1298 to MP1341. Figure 2 shows the location of September 17, 2008 work at MP 1312. Figure 3 shows the location of the September 18, 19 and 22 work at MP 1331.5, 1331 and 1329.5. Figure 4 shows the location of the September 23, 24 and 25, 2008 work at MP 1337, 1339.5 and 1341.

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Table 1 shows a summary of both Phase Contrast Microscopy (PCM) and Transmission Electron Microscopy (TEM) air data results. Criteria that determined which samples were analyzed by TEM included:

- 1) Samples that were visibly overloaded with particulates; and
- 2) Select samples that showed detectable fibers by the PCM method that were greater than air clearance (0.01 fibers/cc) or PEL (0.1 fibers/cc).

Two samples that were collected on the final day of sampling contained fiber concentrations that exceeded 0.01 fibers/cc with sample #53 containing 0.014 fibers/cc and #54 containing 0.013 fibers/cc. It should be noted that these two samples only ran for three hours and pulled air volume of 418 to 425 liters compared to a typical five to eight hour time span (volumes between 700 and 1300 liters) It is suspected that the limited volume of air caused the skewed results, not airborne fiber concentrations. These samples were not analyzed via TEM.

Site Activities-September 17, 2008; RP-15 Gang; MP 1312

The initial work area was MP 1312, which is east of Libby and approximately 2 ½ miles east of the former Kootenai Bluffs vermiculite ore loading facility (Figure 2).

Following a tailgate safety meeting at 0600, EMR fitted six (6) BNSF workers with pumps and air cassettes. Three (3) of the workers tested were laborers, the other three (3) operated machinery. The six BNSF workers sampled during the day are listed as follows:

Rodney Zimmerman	Tamper Operator	BNSF Employee #7353139
Kagen Cox	Laborer	BNSF Employee #1770973
Josh Synnott	Laborer	BNSF Employee #1773688
Ryan Tucker	Laborer	BNSF Employee #1773621
Bryce Van Den Berg	Scrub Crane Operator	BNSF Employee #4861159
Mike Cossairt	Spiker Operator	BNSF Employee #1616770

One sample was collected for each worker and ran continuously throughout the work shift. The samples were started immediately following the safety meeting and were turned off in the afternoon at shift end. Average flow rate for each of the six samples was 2.4 liters per minute (L/m). The total minutes that each pump operated ranged from 532 to 539 minutes. Total volume drawn through the air cassettes ranged from 1277 to 1294 liters (Attachment B).

The samples were labeled 1 through 8 and consisted of two laboratory blanks followed by the six personal samples (Table 1).

Site Activities-September 18, 2008; RP-15 Gang; MP 1331.5

This work was conducted at MP 1331.5, between Libby and Troy near West Kootenai Falls (Figure 3).

Following a tailgate safety meeting at 0600, EMR fitted six (6) BNSF workers with pumps and air cassettes. Three (3) of the workers tested were laborers, the other three (3) operated machinery. The six BNSF workers sampled during the day are listed as follows:

Rodney Zimmerman Tamper Operator BNSF Employee #7353139

Kagen Cox	Laborer	BNSF Employee #1770973
Josh Synnott	Laborer	BNSF Employee #1773688
Ryan Tucker	Laborer	BNSF Employee #1773621
Bryce Van Den Berg	Machine Operator	BNSF Employee #4861159
Mike Cossairt	Machine Operator	BNSF Employee #1616770

One sample was collected for each worker and ran continuously throughout the work shift. The samples were started immediately following the safety meeting and were turned off in the afternoon at shift end. Average flow rate for each of the six samples was 2.4 L/m. The total minutes that each pump operated ranged from 483 to 494 minutes. Total volume drawn through the air cassettes ranged from 1159 to 1186 liters (Attachment B).

The samples were labeled 9 through 16 and consisted of two laboratory blanks followed by the six personal samples (Table 1).

Site Activities-September 19, 2008; RP-15 Gang; MP 1331

This work was conducted at MP 1331, between Libby and Troy, halfway between West Kootenai Falls and East Kootenai Falls (Figure 4).

Following a tailgate safety meeting at 0600, EMR fitted six (6) BNSF workers with pumps and air cassettes. Two (2) of the workers tested were laborers, the other four (4) operated machinery. The six BNSF workers sampled during the day are listed as follows:

Rodney Zimmerman	Tamper Operator	BNSF Employee #7353139
Kagen Cox	Laborer	BNSF Employee #1770973
Josh Synnott	Machine Operator	BNSF Employee #1773688
Ryan Tucker	Laborer	BNSF Employee #1773621
Bryce Van Den Berg	Machine Operator	BNSF Employee #4861159
Mike Cossairt	Machine Operator	BNSF Employee #1616770

One sample was collected for each worker and ran continuously throughout the work shift. The samples were started immediately following the safety meeting and were turned off in the afternoon at shift end. Average flow rate for each of the six samples was 2.4 L/m. The total minutes that each pump operated ranged from 285 to 294 minutes. Total volume drawn through the air cassettes ranged from 684 to 701 liters (Attachment B).

The samples were labeled 17 through 24 and consisted of two laboratory blanks followed by the six personal samples (Table 1).

Site Activities-September 22, 2008; RP-15 Gang; MP 1329.5

This work was conducted at MP 1329.5, between Libby and Troy, just east of East Kootenai Falls (Figure 5).

Following a tailgate safety meeting at 0600, EMR fitted six (6) BNSF workers with pumps and air cassettes. Four (4) of the workers tested were laborers, the other two (2) operated machinery. The six BNSF workers sampled during the day are listed as follows:

Colbie Christie	Laborer	BNSF Employee #1709021
Mark Eckstrom	Laborer	BNSF Employee #1772359
Josh Synnott	Laborer	BNSF Employee #1773688
Ryan Tucker	Laborer	BNSF Employee #1773621
Bryce Van Den Berg	Machine Operator	BNSF Employee #4861159
Mike Cossairt	Machine Operator	BNSF Employee #1616770

One sample was collected for each worker and ran continuously throughout the work shift. The samples were started in the morning immediately following the safety meeting and were turned off in the afternoon at shift end. Average flow rate for each of the six samples was 2.4 L/m. The total minutes that each pump operated ranged from 403 to 420 minutes. Total volume drawn through the air cassettes ranged from 967 to 1008 liters (Attachment B).

The samples were labeled 25 through 32 and consisted of two laboratory blanks followed by the six personal samples (Table 1).

Site Activities-September 23, 2008; RP-21 Gang; MP 1337

The RP-21 gang was monitored on September 23 and 24, 2008. The September 23rd work was conducted at MP 1337, between East Troy and West Kootenai Falls (Figure 6).

Following a tailgate safety meeting at 0600, EMR fitted six (6) BNSF workers with pumps and air cassettes. Two (2) of the workers tested were laborers, the other four (4) operated machinery. The six BNSF workers sampled during the day are listed as follows:

Jody Crowe	Plate Blocker (Laborer)	BNSF Employee #1741867
Ben Robertson	Laborer	BNSF Employee #1689439
Clint Combs	Machine Operator	BNSF Employee #1741768
C.J. Caven	Spike Puller	BNSF Employee #1740927
Justin Garrett	Pre-Gauger	BNSF Employee #1750256
Karl Harms	Anchor Box Operator	BNSF Employee #1714302

One sample was collected for each worker and ran continuously throughout the work shift. The samples were started immediately following the safety meeting and were turned off in the afternoon at shift end. Average flow rate for five of the six samples was 2.4 L/m. The #40 sample had an average flow rate of 2.8 L/m. The total minutes that each pump operated ranged from 289 to 338 minutes. Total volume drawn through the air cassettes ranged from 694 to 918 liters (Attachment B).

The samples were labeled 33 through 40 and consisted of two laboratory blanks followed by the six personal samples (Table 1).

Site Activities-September 24, 2008; RP-21 Gang; MP 1339.5

This work was conducted at MP 1339.5, on the west end of the Troy rail yard (Figure 7).

Following a tailgate safety meeting at 0600, EMR fitted six (6) BNSF workers with pumps and air cassettes. Three (3) of the workers tested were laborers or ground personnel, the other three (3) operated machinery. The six BNSF workers sampled during the day are listed as follows:

Jody Crowe	Clip Remover (Laborer)	BNSF Employee #1741867
Ben Robertson	Assistant Foreman	BNSF Employee #1689439
Aurthur McKee	Machine Operator	BNSF Employee # (see note below)
C.J. Caven	Spike Puller	BNSF Employee #1740927
Dale Johnson	Assistant Foreman	BNSF Employee #4405254
Daniel Rodriguez	Machine Operator	BNSF Employee #1768266

Note: Aurther McKee, as listed in the project data sheets and field notes was not on either of the RP-15 or RP-21 gangs according to Rock LaSorte and Chad Gohman of BNSF. Though the data for this steel gang worker is recorded, it unknown who this individual actually was. EMR suspects the worker may have given us an alias or fictitious name.

One sample was collected for each worker and ran continuously throughout the work shift. The samples were started immediately following the safety meeting and were turned off in the afternoon at shift end. Average flow rate for each of the six samples was 2.4 L/m. The total minutes that each pump operated ranged from 402 to 438 minutes. Total volume drawn through the air cassettes ranged from 965 to 1051 liters (Attachment B).

The samples were labeled 41 through 48 and consisted of two laboratory blanks followed by the six personal samples (Table 1).

Site Activities-September 25, 2008; RP-15 Gang; MP 1341

This work was conducted at MP 1341, at the west end of the OU6 approximately 1 ½ miles west of the Troy rail yard (Figure 8).

Following a tailgate safety meeting at 0600, EMR fitted six (6) BNSF workers with pumps and air cassettes. Four (4) of the workers tested were laborers, the other two (2) operated machinery. The six BNSF workers sampled during the day are listed as follows:

Rodney Zimmerman	Laborer	BNSF Employee #7353139
Kagen Cox	Laborer	BNSF Employee #1770973
Josh Synnott	Laborer	BNSF Employee #1773688
Ryan Tucker	Laborer	BNSF Employee #1773621
Victor Bachmeier	Machine Operator	BNSF Employee #1620103
Mike Cossairt	Machine Operator	BNSF Employee #1616770

One sample was collected for each worker and ran continuously throughout the work shift. The samples were started immediately following the safety meeting and were turned off in the afternoon at shift end. Average flow rate for each of the six samples was 2.4 L/m. The total minutes that each pump operated ranged from 169 to 177 minutes. Total volume drawn through the air cassettes ranged from 406 to 425 liters (Attachment B). The RP-15 crew operated to the west of OU6 after MP 1341 and were not monitored for the rest of their shift.

The samples were labeled 49 through 56 and consisted of two laboratory blanks followed by the six personal samples (Table 1).

SAMPLING RESULTS

Analytical Results-September 17, 2008; RP-15 Gang; MP 1312

Two of the samples, 4 and 5 along with field blanks were tested by PCM. Analysis of samples 4 and 5 resulted in a concentration of 0.003 fibers per cubic centimeter (f/cc), which is less than the OSHA Permissible Exposure Limit (PEL) of 0.1 f/cc. Samples 3, 6, 7 and 8 were occluded and delivered to EMSL's Libby lab for TEM analysis by the ISO 10312 Direct Method. Samples 3, 6, 7 and 8 analyzed by TEM had no detectable asbestos fibers (Table 1) (Attachment C).

Analytical Results-September 18, 2008; RP-15 Gang; MP 1331.5

Two of the samples, 11 and 12 along with field blanks were tested by PCM. Analysis of samples 11 and 12 resulted in a concentration of 0.004 f/cc, which is less than the OSHA PEL of 0.1 f/cc. Samples 13 through 16 were occluded and delivered to EMSL's Libby lab for TEM analysis by the ISO 10312 Direct Method. Samples 13 through 16 analyzed by TEM had no detectable asbestos fibers (Table 1) (Attachment C).

Analytical Results-September 19, 2008; RP-15 Gang; MP 1331

Two of the samples, 19 and 21 along with field blanks were tested by PCM. Analysis of samples 19 and 21 resulted in concentrations of 0.006 f/cc and 0.005 f/cc, respectively. Both of these results were under the OSHA PEL. Samples 20, 22, 23 and 24 were occluded and delivered to EMSL's Libby lab for TEM analysis by the ISO 10312 Direct Method. Samples 20, 22, 23 and 24 analyzed by TEM had no detectable asbestos fibers (Table 1) (Attachment C).

Analytical Results-September 22, 2008; RP-15 Gang; MP 1329.5

Five of the samples (27 through 30 and 32) along with field blanks were tested by PCM. Analysis of samples 27 through 30 and 32 resulted in concentrations ranging from 0.004 f/cc to 0.006 f/cc. These results were under the OSHA PEL. Sample 31 was occluded and delivered to EMSL's Libby lab for TEM analysis by the ISO 10312 Direct Method. Sample 31 had no detectable asbestos fibers by TEM (Table 1) (Attachment C).

Analytical Results-September 23, 2008; RP-21 Gang; MP 1337

Four of the samples, 35 through 38 along with field blanks were tested by PCM. Analysis of samples 35 through 38 resulted in concentrations of 0.005 f/cc to 0.007 f/cc. These results were under the OSHA PEL. Samples 39 and 40 were occluded and delivered to EMSL's Libby lab for TEM analysis by the ISO 10312 Direct Method. Samples 39 and 40 had no detectable asbestos fibers (Table 1) (Attachment C).

Analytical Results-September 24, 2008; RP-21 Gang; MP 1339.5

Four of the samples (43 through 46) along with field blanks , were tested by PCM. Analysis of samples 43 through 46 resulted in concentrations of 0.003 f/cc to 0.004 f/cc. These results were under the OSHA PEL. Samples 47 and 48 were occluded and delivered to EMSL's Libby lab for TEM analysis by the ISO 10312 Direct Method. Both samples (47 and 48) had no detectable asbestos fibers by TEM (Table 1) (Attachment C).

Analytical Results-September 25, 2008; RP-15 Gang; MP 1341

All six of the worker samples (51 through 56) along with field blanks were tested by PCM. Analysis of samples 51 through 56 resulted in concentrations ranging from 0.006 to 0.014f/cc. These results were under the OSHA PEL. None of the samples required TEM analysis (Table 1).

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EMR appreciates this opportunity to be of service. If you have any questions, please call either Scott Carney at (218) 625-2331 or me at (425) 861-4561.

Sincerely, EMR, Inc.,

David L. Welch, L.G.

Project Field Manager

Scott Carney, P.G., CHMM

Project Manager

cc: D. Smith – BNSF

S. Carney -- EMR

Attach: Figure 1: Overview of Operable Unit 6 (OU6) BNSF Kootenai River Sub Mile Posts 1312-1341

Figure 2: Sampling Locations, September 17, 2008 MP 1312

Figure 3: Sampling Locations, September 18, 19 and 22, 2008; MP 1331.5, 1331, and 1329.5 Figure 4: Sampling Locations, September 23, 24 and 25, 2008; MP 1337, 1339.5 and 1341.

Table 1: Air Data Summary, PCM and TEM Analysis

Attachment A: Photolog

Attachment B: Asbestos Air Sampling Data Sheets/Chain-of-Custodies

Attachment C:TEM Analytical Results

S. Welch

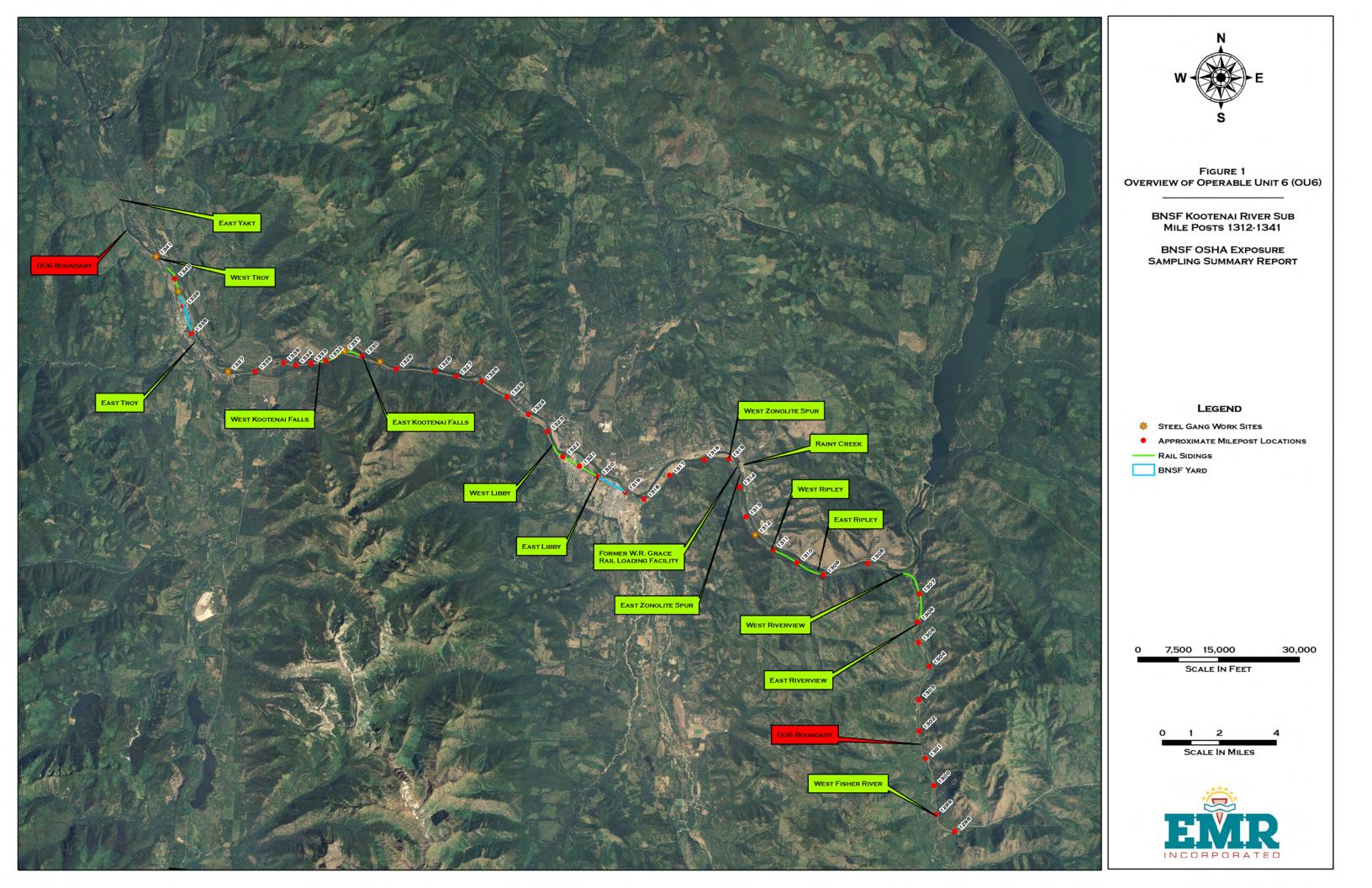






FIGURE 2 SAMPLING LOCATIONS SEPTEMBER 17, 2008

BNSF KOOTENAI RIVER SUB MILE POSTS 1312-1341

BNSF OSHA EXPOSURE SAMPLING SUMMARY REPORT

LEGEND

- * STEEL GANG WORK SITES
- APPROXIMATE MILEPOST LOCATIONS

RAIL SIDINGS

BNSF YARD

2,625 5,250

10,500

SCALE IN FEET

0 0.5
Scale In Miles







FIGURE 3 SAMPLING LOCATIONS SEPTEMBER 18, 19 & 22, 2008

BNSF KOOTENAI RIVER SUB MILE POSTS 1312-1341

BNSF OSHA EXPOSURE SAMPLING SUMMARY REPORT

LEGEND

- * STEEL GANG WORK SITES
- APPROXIMATE MILEPOST LOCATIONS

2,625 5,250

10,500

SCALE IN FEET

SCALE IN MILES





Table 1

Summary of OSHA Personal Air Monitoring Results BNSF RP-15/RP-21

BNSF Kootenai River Subdivision September 17-25, 2008 EMR Project #5539-110

Normal Preparation

Sample 10 Dafe	Field	Sample	Analysis	Laboratory	Method	Volume	Sensitivity	LA	OA	С	Fibers/cc	Personnel	BNSF Employee #	Task	Milepost
2													The Lampsoy	- 1	- I I I I
2	1	9/17/2008	9/17/2008	EMR	NIOSH 7400	_		_	_	_	2 1	Lab Blank	_	-	1312
3	2					_	-	_	_	_			-	_	
4 917/2008 917/2008 EMR NIOSH 7400 1279 -						1435.2	0.00206	<dl< td=""><td><dl< td=""><td><dl< td=""><td>-</td><td></td><td>7353139</td><td>Tamper Operator</td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>-</td><td></td><td>7353139</td><td>Tamper Operator</td><td></td></dl<></td></dl<>	<dl< td=""><td>-</td><td></td><td>7353139</td><td>Tamper Operator</td><td></td></dl<>	-		7353139	Tamper Operator	
Fig.	4	9/17/2008	9/17/2008	EMR	NIOSH 7400	1294	-	_	-	-	0.003				1312
Page	5	9/17/2008	9/17/2008	EMR	NIOSH 7400	1279	-	-	-	-	0.003	Josh Synnot	1773688	Laborer	1312
8	6	9/17/2008	9/30/2008	EMSL	ISO 10312	1425.6	0.00208	<dl< td=""><td><dl< td=""><td><dl< td=""><td>-</td><td></td><td>1773621</td><td>Laborer</td><td>1312</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>-</td><td></td><td>1773621</td><td>Laborer</td><td>1312</td></dl<></td></dl<>	<dl< td=""><td>-</td><td></td><td>1773621</td><td>Laborer</td><td>1312</td></dl<>	-		1773621	Laborer	1312
9 9/18/2008 9/18/2008 EMR NIOSH 7400 2	7	9/17/2008	9/30/2008	EMSL	ISO 10312	1425.6	0.00208	<dl< td=""><td><dl< td=""><td><dl< td=""><td>-</td><td>Bryce Van Den Berg</td><td>4861159</td><td>Scrub Crane Operator</td><td>1312</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>-</td><td>Bryce Van Den Berg</td><td>4861159</td><td>Scrub Crane Operator</td><td>1312</td></dl<></td></dl<>	<dl< td=""><td>-</td><td>Bryce Van Den Berg</td><td>4861159</td><td>Scrub Crane Operator</td><td>1312</td></dl<>	-	Bryce Van Den Berg	4861159	Scrub Crane Operator	1312
10	8	9/17/2008	9/30/2008	EMSL	ISO 10312	1420.8	0.00208	<dl< td=""><td><dl< td=""><td><dl< td=""><td>-</td><td>Mike Cossairt</td><td>1616770</td><td>Spiker Operator</td><td>1312</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>-</td><td>Mike Cossairt</td><td>1616770</td><td>Spiker Operator</td><td>1312</td></dl<></td></dl<>	<dl< td=""><td>-</td><td>Mike Cossairt</td><td>1616770</td><td>Spiker Operator</td><td>1312</td></dl<>	-	Mike Cossairt	1616770	Spiker Operator	1312
11	9	9/18/2008	9/18/2008	EMR	NIOSH 7400	-	-	-	-	-	2 1	Lab Blank	-	=	1331.5
12 9/18/2008 9/18/2008 EMR NIOSH 7400 1174 - 0.004 Josh Synnot 1773688 Laborer 1331.5 13 9/18/2008 9/30/2008 EMSL ISO 10312 1176 0.00224 CDL CDL CDL Bryce Van Den Berg 4861159 Machine Operator 1331.5 14 9/18/2008 9/30/2008 EMSL ISO 10312 1176 0.00224 CDL CDL CDL CDL CDL - CDL	10	9/18/2008	9/18/2008	EMR	NIOSH 7400	-	-	-	-	-	3 1	Field Blank	-	-	1331.5
13	11	9/18/2008	9/18/2008	EMR	NIOSH 7400	1186	-	-	-	-	0.004	Ryan Tucker	1773621	Laborer	1331.5
14	12	9/18/2008	9/18/2008	EMR	NIOSH 7400	1174	-	-	-	-	0.004	Josh Synnot	1773688	Laborer	1331.5
15 9/18/2008 9/30/2008 EMSL ISO 10312 1159 0.00224 <dl <dl="" td="" ="" <=""><td>13</td><td>9/18/2008</td><td>9/30/2008</td><td>EMSL</td><td>ISO 10312</td><td>1178</td><td>0.00224</td><td><dl< td=""><td><dl< td=""><td><dl< td=""><td>-</td><td>Bryce Van Den Berg</td><td>4861159</td><td>Machine Operator</td><td>1331.5</td></dl<></td></dl<></td></dl<></td></dl>	13	9/18/2008	9/30/2008	EMSL	ISO 10312	1178	0.00224	<dl< td=""><td><dl< td=""><td><dl< td=""><td>-</td><td>Bryce Van Den Berg</td><td>4861159</td><td>Machine Operator</td><td>1331.5</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>-</td><td>Bryce Van Den Berg</td><td>4861159</td><td>Machine Operator</td><td>1331.5</td></dl<></td></dl<>	<dl< td=""><td>-</td><td>Bryce Van Den Berg</td><td>4861159</td><td>Machine Operator</td><td>1331.5</td></dl<>	-	Bryce Van Den Berg	4861159	Machine Operator	1331.5
16 9/18/2008 9/30/2008 EMSL ISO 10312 1174 0.00221 CDL CDL	14	9/18/2008	9/30/2008	EMSL							-	Mike Cossairt		Machine Operator	
17				EMSL							-			Laborer	
18	16	9/18/2008	9/30/2008	EMSL	ISO 10312	1174	0.00221	<dl< td=""><td><dl< td=""><td><dl< td=""><td>-</td><td>Rodney Zimmerman</td><td>7353139</td><td>Tamper Operator</td><td>1331.5</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>-</td><td>Rodney Zimmerman</td><td>7353139</td><td>Tamper Operator</td><td>1331.5</td></dl<></td></dl<>	<dl< td=""><td>-</td><td>Rodney Zimmerman</td><td>7353139</td><td>Tamper Operator</td><td>1331.5</td></dl<>	-	Rodney Zimmerman	7353139	Tamper Operator	1331.5
19 9/19/2008 9/19/2008 EMR NIOSH 7400 701 0.006 Rodney Zimmerman 7353139 Tamper Operator 1331	17	9/19/2008	9/19/2008	EMR	NIOSH 7400	-	-	-	-	-		Lab Blank	-	-	1331
20 9/19/2008 9/30/2008 EMSL ISO 10312 698.4 0.00223 CDL CDL	18	9/19/2008	9/19/2008	EMR	NIOSH 7400	-	-	-	-	-	2 1	Field Blank	-	-	1331
21 9/19/2008 9/19/2008 EMR NIOSH 7400 684 - - - - 0.005 Ryan Tucker 1773621 Laborer 1331 22 9/19/2008 9/30/2008 EMSL ISO 10312 691.2 0.00226 <dl< td=""> <dl< td=""> <dl< td=""> - Mike Cossairt 1616770 Machine Operator 1331 23 9/19/2008 9/30/2008 EMSL ISO 10312 698.4 0.00223 <dl< td=""> <dl< td=""> <dl< td=""> - Bryce Van Den Berg 4861159 Machine Operator 1331 24 9/19/2008 9/30/2008 EMSL ISO 10312 705.6 0.0021 <dl< td=""> <dl< td=""> <dl< td=""> - Ryac Van Den Berg 4861159 Machine Operator 1331 25 9/22/2008 9/22/2008 EMR NIOSH 7400 - - - - 31 Lab Blank - - - 1329.5 26 9/22/2008 9/22/2008 EMR NIOSH 7400 1008 -</dl<></dl<></dl<></dl<></dl<></dl<></dl<></dl<></dl<>	19	9/19/2008	9/19/2008	EMR	NIOSH 7400	701	-	-	-	-	0.006	Rodney Zimmerman	7353139	Tamper Operator	1331
22 9/19/2008 9/30/2008 EMSL ISO 10312 691.2 0.00226 <dl< th=""> <dl< th=""> < DL < DL < Mike Cossairt 1616770 Machine Operator 1331 23 9/19/2008 9/30/2008 EMSL ISO 10312 698.4 0.00223 <dl< td=""> <dl< td=""> < DL</dl<></dl<></dl<></dl<>		9/19/2008		EMSL	ISO 10312	698.4	0.00223	<dl< td=""><td><dl< td=""><td><dl< td=""><td>-</td><td></td><td></td><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>-</td><td></td><td></td><td></td><td></td></dl<></td></dl<>	<dl< td=""><td>-</td><td></td><td></td><td></td><td></td></dl<>	-				
23 9/19/2008 9/30/2008 EMSL ISO 10312 698.4 0.00223 <dl< th=""> <dl< th=""> <dl< th=""> Bryce Van Den Berg 4861159 Machine Operator 1331 24 9/19/2008 9/30/2008 EMSL ISO 10312 705.6 0.0021 <dl< td=""> <dl< td=""> <dl< td=""> - Kagen Cox 1770973 Laborer 1331 25 9/22/2008 9/22/2008 EMR NIOSH 7400 - - - - 2¹ Field Blank - - - 1329.5 26 9/22/2008 9/22/2008 EMR NIOSH 7400 - - - - 0.004 Ryan Tucker 1773621 Laborer 1329.5 28 9/22/2008 9/22/2008 EMR NIOSH 7400 1003 - - - 0.005 Mark Eckstrom 1773621 Laborer 1329.5 29 9/22/2008 9/22/2008 EMR NIOSH 7400 1003 - - - - 0.005 <t< td=""><td></td><td>9/19/2008</td><td>9/19/2008</td><td>EMR</td><td>NIOSH 7400</td><td>684</td><td>-</td><td>-</td><td>-</td><td>-</td><td>0.005</td><td>Ryan Tucker</td><td>1773621</td><td></td><td>1331</td></t<></dl<></dl<></dl<></dl<></dl<></dl<>		9/19/2008	9/19/2008	EMR	NIOSH 7400	684	-	-	-	-	0.005	Ryan Tucker	1773621		1331
24 9/19/2008 9/30/2008 EMSL ISO 10312 705.6 0.0021 <dl< th=""> <dl< th=""> < BL - Kagen Cox 1770973 Laborer 1331 25 9/22/2008 9/22/2008 EMR NIOSH 7400 - - - - 2¹ Field Blank - - - 1329.5 26 9/22/2008 9/22/2008 EMR NIOSH 7400 - - - - 2¹ Field Blank - - - 1329.5 27 9/22/2008 9/22/2008 EMR NIOSH 7400 1008 - - - 0.004 Ryan Tucker 1773621 Laborer 1329.5 28 9/22/2008 9/22/2008 EMR NIOSH 7400 1003 - - - 0.005 Mark Eckstrom 17735621 Laborer 1329.5 29 9/22/2008 9/22/2008 EMR NIOSH 7400 986 - - - 0.004 Colbey Christie 1709021</dl<></dl<>	22	9/19/2008	9/30/2008	EMSL	ISO 10312	691.2	0.00226	<dl< td=""><td><dl< td=""><td><dl< td=""><td>-</td><td>Mike Cossairt</td><td>1616770</td><td></td><td>1331</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>-</td><td>Mike Cossairt</td><td>1616770</td><td></td><td>1331</td></dl<></td></dl<>	<dl< td=""><td>-</td><td>Mike Cossairt</td><td>1616770</td><td></td><td>1331</td></dl<>	-	Mike Cossairt	1616770		1331
25 9/22/2008 9/22/2008 EMR NIOSH 7400 - - - - 3 1 Lab Blank - - - 1329.5 26 9/22/2008 9/22/2008 EMR NIOSH 7400 - - - - 2 1 Field Blank - - - 1329.5 27 9/22/2008 9/22/2008 EMR NIOSH 7400 1008 - - - 0.004 Ryan Tucker 1773621 Laborer 1329.5 28 9/22/2008 9/22/2008 EMR NIOSH 7400 1003 - - - 0.005 Mark Eckstrom 1773529 Laborer 1329.5 29 9/22/2008 9/22/2008 EMR NIOSH 7400 986 - - - 0.004 Colbey Christie 1709021 Laborer 1329.5 31 9/22/2008 9/22/2008 EMR NIOSH 7400 986 - - - - 0.006 Josh Synnot 1773688 Laborer				EMSL		698.4					-	Bryce Van Den Berg	4861159	Machine Operator	
26 9/22/2008 9/22/2008 EMR NIOSH 7400 - - - - 2¹ Field Blank - - - 1329.5 27 9/22/2008 9/22/2008 EMR NIOSH 7400 1008 - - - 0.004 Ryan Tucker 1773621 Laborer 1329.5 28 9/22/2008 9/22/2008 EMR NIOSH 7400 1003 - - - 0.005 Mark Eckstrom 1772359 Laborer 1329.5 29 9/22/2008 9/22/2008 EMR NIOSH 7400 986 - - - 0.004 Colbey Christie 1709021 Laborer 1329.5 30 9/22/2008 9/22/2008 EMR NIOSH 7400 986 - - - 0.006 Josh Synnot 1773688 Laborer 1329.5 31 9/22/2008 9/30/2008 EMSL ISO 10312 974.4 0.00203 <dl< td=""> <dl< td=""> - Bryce Van Den Berg 4861159</dl<></dl<>	24	9/19/2008	9/30/2008	EMSL	ISO 10312	705.6	0.0021	<dl< td=""><td><dl< td=""><td><dl< td=""><td>-</td><td>Kagen Cox</td><td>1770973</td><td>Laborer</td><td>1331</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>-</td><td>Kagen Cox</td><td>1770973</td><td>Laborer</td><td>1331</td></dl<></td></dl<>	<dl< td=""><td>-</td><td>Kagen Cox</td><td>1770973</td><td>Laborer</td><td>1331</td></dl<>	-	Kagen Cox	1770973	Laborer	1331
27 9/22/2008 9/22/2008 EMR NIOSH 7400 1008 - - - 0.004 Ryan Tucker 1773621 Laborer 1329.5 28 9/22/2008 9/22/2008 EMR NIOSH 7400 1003 - - - 0.005 Mark Eckstrom 177359 Laborer 1329.5 29 9/22/2008 9/22/2008 EMR NIOSH 7400 986 - - - 0.004 Colbey Christie 1709021 Laborer 1329.5 30 9/22/2008 9/22/2008 EMR NIOSH 7400 986 - - - 0.006 Josh Synnot 1773688 Laborer 1329.5 31 9/22/2008 9/30/2008 EMSL ISO 10312 974.4 0.00203 VL VL VL - Bryce Van Den Berg 4861159 Machine Operator 1329.5 32 9/23/2008 9/23/2008 EMR NIOSH 7400 - - - - 2¹ Lab Blank <t< td=""><td>25</td><td>9/22/2008</td><td>9/22/2008</td><td>EMR</td><td>NIOSH 7400</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>3 1</td><td>Lab Blank</td><td>-</td><td>-</td><td>1329.5</td></t<>	25	9/22/2008	9/22/2008	EMR	NIOSH 7400	-	-	-	-	-	3 1	Lab Blank	-	-	1329.5
28 9/22/2008 9/22/2008 EMR NIOSH 7400 1003 - - - - 0.005 Mark Eckstrom 1772359 Laborer 1329.5 29 9/22/2008 9/22/2008 EMR NIOSH 7400 986 - - - 0.004 Colbey Christie 1709021 Laborer 1329.5 30 9/22/2008 9/22/2008 EMR NIOSH 7400 986 - - - 0.006 Josh Synnot 1773688 Laborer 1329.5 31 9/22/2008 9/30/2008 EMSL ISO 10312 974.4 0.00203 VL VL DL - Bryce Van Den Berg 4861159 Machine Operator 1329.5 32 9/22/2008 9/22/2008 EMR NIOSH 7400 967 - - - 2 1 Lab Blank - - - 1337 33 9/23/2008 9/23/2008 EMR NIOSH 7400 - - - - 2 1 Lab	26	9/22/2008	9/22/2008	EMR	NIOSH 7400	-	-	-	-	-	2 1	Field Blank	-	-	1329.5
29 9/22/2008 9/22/2008 EMR NIOSH 7400 986 - - - - 0.004 Colbey Christie 1709021 Laborer 1329.5 30 9/22/2008 9/22/2008 EMR NIOSH 7400 986 - - - - 0.006 Josh Synnot 1773688 Laborer 1329.5 31 9/22/2008 9/30/2008 EMSL ISO 10312 974.4 0.00203 >DL >DL >DL - Bryce Van Den Berg 4861159 Machine Operator 1329.5 32 9/22/2008 9/22/2008 EMR NIOSH 7400 967 - - - D.005 Mike Cossairt 1616770 Machine Operator 1329.5 33 9/23/2008 9/23/2008 EMR NIOSH 7400 - - - - 2 1 Lab Blank - - - 1337 34 9/23/2008 9/23/2008 EMR NIOSH 7400 - - - - <	27	9/22/2008	9/22/2008	EMR	NIOSH 7400	1008	-	-	-	-	0.004	Ryan Tucker	1773621	Laborer	1329.5
30 9/22/2008 9/22/2008 EMR NIOSH 7400 986 - - - - 0.006 Josh Synnot 1773688 Laborer 1329.5 31 9/22/2008 9/30/2008 EMSL ISO 10312 974.4 0.00203 <dl< td=""> <dl< td=""> - Bryce Van Den Berg 4861159 Machine Operator 1329.5 32 9/22/2008 9/22/2008 EMR NIOSH 7400 967 - - - 2 1 Lab Blank - - - 1337 34 9/23/2008 9/23/2008 EMR NIOSH 7400 - - - - 2 1 Field Blank - - - 1337 35 9/23/2008 9/23/2008 EMR NIOSH 7400 694 - - - 0.006 Jody Crowe 1741867 Plate Blocker 1337</dl<></dl<>	28	9/22/2008	9/22/2008	EMR	NIOSH 7400	1003	-	-	-	-	0.005	Mark Eckstrom	1772359	Laborer	1329.5
31 9/22/2008 9/30/2008 EMSL ISO 10312 974.4 0.00203 CDL CDL CDL - Bryce Van Den Berg 4861159 Machine Operator 1329.5 32 9/22/2008 9/22/2008 EMR NIOSH 7400 967 - - - 2 1 Lab Blank - - - 1337 34 9/23/2008 9/23/2008 EMR NIOSH 7400 - - - - 2 1 Field Blank - - - 1337 35 9/23/2008 9/23/2008 EMR NIOSH 7400 694 - - - 0.006 Jody Crowe 1741867 Plate Blocker 1337	29	9/22/2008	9/22/2008	EMR	NIOSH 7400	986	-	-	-	-	0.004	Colbey Christie	1709021	Laborer	1329.5
32 9/22/2008 9/22/2008 EMR NIOSH 7400 967 0.005 Mike Cossairt 1616770 Machine Operator 1329.5 33 9/23/2008 9/23/2008 EMR NIOSH 7400 - - - - 2 1 Lab Blank - - - 1337 34 9/23/2008 9/23/2008 EMR NIOSH 7400 - - - - 2 1 Field Blank - - - 1337 35 9/23/2008 9/23/2008 EMR NIOSH 7400 694 - - - 0.006 Jody Crowe 1741867 Plate Blocker 1337	30	9/22/2008	9/22/2008	EMR	NIOSH 7400	986	-	-	-	-	0.006	Josh Synnot	1773688	Laborer	1329.5
33 9/23/2008 9/23/2008 EMR NIOSH 7400 - - - - - 2 1 2 1 Lab Blank - - - 1337 34 9/23/2008 9/23/2008 EMR NIOSH 7400 - - - - 2 1 Field Blank - - - 1337 35 9/23/2008 9/23/2008 EMR NIOSH 7400 694 - - - 0.006 Jody Crowe 1741867 Plate Blocker 1337	31	9/22/2008	9/30/2008	EMSL	ISO 10312	974.4	0.00203	<dl< td=""><td><dl< td=""><td><dl< td=""><td>-</td><td>Bryce Van Den Berg</td><td>4861159</td><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>-</td><td>Bryce Van Den Berg</td><td>4861159</td><td></td><td></td></dl<></td></dl<>	<dl< td=""><td>-</td><td>Bryce Van Den Berg</td><td>4861159</td><td></td><td></td></dl<>	-	Bryce Van Den Berg	4861159		
34 9/23/2008 9/23/2008 EMR NIOSH 7400 - - - - 2 1 Field Blank - - - 1337 35 9/23/2008 9/23/2008 EMR NIOSH 7400 694 - - - - 0.006 Jody Crowe 1741867 Plate Blocker 1337	32	9/22/2008	9/22/2008	EMR	NIOSH 7400	967					0.005	Mike Cossairt	1616770	Machine Operator	1329.5
35 9/23/2008 9/23/2008 EMR NIOSH 7400 694 0.006 Jody Crowe 1741867 Plate Blocker 1337	33	9/23/2008	9/23/2008	EMR	NIOSH 7400			_				Lab Blank	-	<u>-</u>	1337
	34	9/23/2008	9/23/2008	EMR	NIOSH 7400		-	-	_	-	2 1	Field Blank	-	-	1337
36 9/23/2008 9/23/2008 EMR NIOSH 7400 811 0.007 Ben Robertson 1689439 Laborer 1337	35	9/23/2008	9/23/2008	EMR	NIOSH 7400	694	-	-	-	-	0.006	Jody Crowe	1741867	Plate Blocker	1337
	36	9/23/2008		EMR	NIOSH 7400	811	-	_		_	0.007	Ben Robertson	1689439	Laborer	1337

Table 1

Summary of OSHA Personal Air Monitoring Results

BNSF RP-15/RP-21

BNSF Kootenai River Subdivision September 17-25, 2008 EMR Project #5539-110

Field	Sample	Analysis	Laboratory	Method	Volume	Sensitivity	LA	OA	C	Fibers/cc	Personnel	BNSF Employee #	Task	Milepost
Sample ID	Date	Date	·		(L)						Name	2 0		-
37	9/23/2008	9/23/2008	EMR	NIOSH 7400	792	-	-	-	-	0.007	Clint Combs	1741768	Machine Operator	1337
38	9/23/2008	9/23/2008	EMR	NIOSH 7400	778	-	-	-	-	0.005	CJ Caven	1740927	Spike Puller	1337
39	9/23/2008	10/28/2008	EMSL	ISO 10312	792	OVERLOAD	ED FILT	TER (SEE)	BELOW)	-	Justin Garrett	1750256	Pre-Gauger	1337
40	9/23/2008	10/28/2008	EMSL	ISO 10312	918	OVERLOAD	ED FILT	TER (SEE 1	BELOW)	-	Karl Harms	1714302	Anchor Box Operator	1337
41	9/24/2008	9/24/2008	EMR	NIOSH 7400	-	-	-	-	-	2 1	Lab Blank	-	-	1339.5
42	9/24/2008	9/24/2008	EMR	NIOSH 7400	-	-	-	-	-	3 1	Field Blank	-	-	1339.5
43	9/24/2008	9/24/2008	EMR	NIOSH 7400	977	-	-	-	-	0.004	Dale Johnson	4405254	Asst. Foreman	1339.5
44	9/24/2008	9/24/2008	EMR	NIOSH 7400	986	-	-	-	-	0.004	Jody Crowe	1741867	Clip Remover	1339.5
45	9/24/2008	9/24/2008	EMR	NIOSH 7400	974	-	-	-	-	0.004	CJ Caven	1740927	Laborer	1339.5
46	9/24/2008	9/24/2008	EMR	NIOSH 7400	1051	-	-	-	-	0.003	Ben Robertson	1689439	Asst. Foreman	1339.5
47	9/24/2008	10/28/2008	EMSL	ISO 10312	964	OVERLOAD	ED FILT	TER (SEE)	BELOW)	-	Aurthur McKee	(See Note)	Machine Operator	1339.5
48	9/24/2008	10/28/2008	EMSL	ISO 10312	967	0.00236	<dl< td=""><td><dl< td=""><td><dl< td=""><td>-</td><td>Daniel Rodriguez</td><td>1768266</td><td>Machine Operator</td><td>1339.5</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>-</td><td>Daniel Rodriguez</td><td>1768266</td><td>Machine Operator</td><td>1339.5</td></dl<></td></dl<>	<dl< td=""><td>-</td><td>Daniel Rodriguez</td><td>1768266</td><td>Machine Operator</td><td>1339.5</td></dl<>	-	Daniel Rodriguez	1768266	Machine Operator	1339.5
49	9/25/2008	9/25/2008	EMR	NIOSH 7400	-	-	-	-	-	2 1	Lab Blank	-	-	1341
50	9/25/2008	9/25/2008	EMR	NIOSH 7400	-	-	-	-	-	2 1	Field Blank	-	-	1341
51	9/25/2008	9/25/2008	EMR	NIOSH 7400	422	-	-	-	-	0.006	Josh Synnot	1773688	Laborer	1341
52	9/25/2008	9/25/2008	EMR	NIOSH 7400	422	-	-	-	-	0.009	Ryan Tucker	1773621	Laborer	1341
53	9/25/2008	9/25/2008	EMR	NIOSH 7400	425	-	-	-	-	0.014 2	Mike Cossairt	1616770	Machine Operator	1341
54	9/25/2008	9/25/2008	EMR	NIOSH 7400	418	-		-	-	0.013 2	Victor Backmeier	1620103	Machine Operator	1341
55	9/25/2008	9/25/2008	EMR	NIOSH 7400	410	-	-	-	-	0.07	Rodney Zimmerman	7353139	Laborer	1341
56	9/25/2008	9/25/2008	EMR	NIOSH 7400	406	-	-	-	-	0.008	Kagen Cox	1770973	Laborer	1341

Overloaded Prep

0 101104404	1101												
Field	Sample	Analysis	Laboratory	Method/Prep Method	Sensitivity	Bin A	Bin B	Bin C	Bin D	Bin E	Bin F	Personnel	Milepost
Sample ID	Date	Date				Conc	Conc	Conc	Conc	Conc	Conc	Name	
						(f/cc)	(f/cc)	(f/cc)	(f/cc)	(f/cc)	(f/cc)		
39	9/23/2008	10/28/2008	EMSL	ISO 10312/Indirect Ashed	0.00359	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td>Justin Garrett</td><td>1337</td></dl<></td></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td>Justin Garrett</td><td>1337</td></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td>Justin Garrett</td><td>1337</td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td>Justin Garrett</td><td>1337</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>Justin Garrett</td><td>1337</td></dl<></td></dl<>	<dl< td=""><td>Justin Garrett</td><td>1337</td></dl<>	Justin Garrett	1337
40	9/23/2008	10/28/2008	EMSL	ISO 10312/Indirect Ashed	0.0103	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td>Karl Harms</td><td>1337</td></dl<></td></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td>Karl Harms</td><td>1337</td></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td>Karl Harms</td><td>1337</td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td>Karl Harms</td><td>1337</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>Karl Harms</td><td>1337</td></dl<></td></dl<>	<dl< td=""><td>Karl Harms</td><td>1337</td></dl<>	Karl Harms	1337
47	9/24/2008	10/28/2008	EMSL	ISO 10312/Indirect Ashed	0.00589	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td>Aurthur McKee</td><td>1399.5</td></dl<></td></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td>Aurthur McKee</td><td>1399.5</td></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td>Aurthur McKee</td><td>1399.5</td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td>Aurthur McKee</td><td>1399.5</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>Aurthur McKee</td><td>1399.5</td></dl<></td></dl<>	<dl< td=""><td>Aurthur McKee</td><td>1399.5</td></dl<>	Aurthur McKee	1399.5

DL - Detection Limits

Aurthur McKee's BNSF employee number unknown; both Rock LaSorte and Chad Gohman stated that this name was not on either of the RP-15 or RP-21 gang lists.

LA - Libby Amphibole

OA - Other Amphibole

C - Chrysotile

¹ - # of fibers per 100 fields counted

² - Results are suspected as skewed based on limited volume of air passing through cassette filters.

ATTACHMENT A PHOTOLOG





BNSF Gang (RP-21) In Troy Yard MP 1339.5



BNSF Gang (RP-15) working at MP 1312







BNSF Gang (RP-15) working at MP 1312



BNSF Gang (RP-15) working at MP 1312





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BNSF Gang (RP-15) In Troy Yard MP 1312



BNSF Gang (RP-15) working at MP 1331.5







BNSF Gang (RP-15) working at MP 1312



BNSF Gang (RP-15) working at MP 1331.5





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ATTACHMENT B AIR DATA SHEETS/CHAIN-OF-CUSTODIES

ENCLOSURE		PASS
MINI-ENCLOSE		OR
NO ENCLOSURE	X	FAIL

ASBESTOS AIR SAMPLING DATA SHEET

BLANK AVERAGE (FIBERS/100 FIELDS) 2.0 CLEARANCE SAMPLES < 0.01 CLEARANCE LEVEL

			72	
1	1 4	-1	V	7
				C
	-			

PROJECT NO. PROJECT TITLE: CLIENT:		5539.110				INCOR	E: <u>9/17/2008</u>						
		OSHA Ai	r samplir	ig			NACEMENT RESOURCES	PROJECT MONITOR:	John Starr				
		BNSF - L	ibby, MT			and the control of th		WORK AREA:	Mile marker 1312				
Sample	Pump	Time	Time	Total	Flow Rate	Volume	Sample	Location/Description	Fibers	Flds	Fibers/cc	8 Hr. TWA	
Number	Number	On	Off	Minutes	s (I/m - avg.) (liters)			(-blank)	27	100000000000000000000000000000000000000	Fibers/cc		

Number	Number	On	Off	Minutes	(l/m - avg.)	(liters)	Cample Education Description	(-blank)	1 100	I IDEIS/CC	Fibers/cc
1			¥	-	-		Lab Blank	2.0	100		-
2	-	<u>4</u>				-	Field Blank	2.0	100		<u>-</u>
3	HV1	6:37	15:35	538	2.4	1291	RP 15 OSHA R. Zimmerman			Occluded	
4	HV2	6:39	15:38	539	2.4	1294	RP 15 OSHA K. Cox	8.0	100	0.003	0.00
5	HV3	6:41	15:34	533	2.4	1279	RP 15 OSHA J. Synnott	9.0	100	0.003	0.00
6	HV4	6:42	15:36	534	2.4	1282	RP 15 OSHA R. Tucker			Occluded	
7	HV5	6:44	15:38	534	2.4	1282	RP 15 OSHA B. Van Den Berg			Occluded	
8	HV6	6:45	15:37	532	2.4	1277	RP 15 OSHA M. Cosscurt			Occluded	
Samples C John Starr	ollected By	(Name)	Signature)	i.	Date: 9/17/2008		Received by (Name/Signature): Date:				
Received b	Received by (Name/Signature): Date:						(Laboratory) Analyzed by (Name/Signature): John Starr			Date: 9/17/2008	
Furnaround	Turnaround Time (X) On-site () Immediate () 24 Hour () Normal					lormal	Comments: OSHA sampling on RR workers on track work.				
Laboratory Receiving Notes: Custody Seal Intact?			Sample Condition:								

ENCLOSURE	
MINI-ENCLOSE	
NO ENCLOSURE	X

GLOVEBAG

PROJECT NO.

PROJECT TITLE:



5539.110

OSHA Air sampling

ASBESTOS AIR SAMPLING DATA SHEET

BLANK AVERAGE (FIBERS/100 FIELDS)

CLEARANCE SAMPLES < 0.01 CLEARANCE LEVEL

2.5

	**	
Res N	77	
	1 1	K
1 0 0 0	RPORA	TED
ERT I POMMENTAL	MANAGEMENT	REMOUSCES

DATE: 9/18/2008

PROJECT MONITOR: John Starr

CLIENT:		BNSF - I	_ibby, MT)		WORK AREA: Mile Marker 1331.5					
Sample Number	Pump Number	Time On	Time Off	Total Minutes	Flow Rate (I/m - avg.)	Volume (liters)	Sample Location/Description	Fibers (-blank)	Flds	Fibers/cc	8 Hr. TWA Fibers/cc
9	-	-	-			(4)	Lab Blank	2.0	100	- 2	
10	-				-	-	Field Blank	3.0	100	- 1	
11	HV1	6:42	14:56	494	2.4	1186	RP 15 OSHA R. Tucker	8.5	100	0.004	0.00
12	HV2	6:44	14:53	489	2.4	1174	RP 15 OSHA J. Synnott	10.5	100	0.004	0.00
13	HV3	6:46	14:57	491	2.4	1178	RP 15 OSHA B. Van Den Berg			Occluded	
14	HV4	6:48	14:58	490	2.4	1176	RP 15 OSHA M. Cosscurt			Occluded	
15	HV5	6:50	14:53	483	2.4	1159	RP 15 OSHA K. Cox			Occluded	
16	HV6	6:52	15:01	489	2.4	1174	RP 15 OSHA R. Zimmerman			Occluded	
Samples C John Starr	collected B	y (Name/	Signature):	Date: 9/18/2008		Received by (Name/Signature):			Date:	
Received by (Name/Signature): Date:							(Laboratory) Analyzed by (Name/Signatur	e):		Date:	9/18/2008
Turnaroun	d Time (X)	On-site	() Immed	liate () 2	4 Hour () N	Normal					
Laboratory Receiving Notes: Custody Sample Seal Intact? Condition:											

ENCLOSURE	PASS
MINI-ENCLOSE	OR
DENCLOSURE 🔍	FAIL

5539.110

OSHA Air sampling

BNSF - Libby, MT

ASBESTOS AIR SAMPLING DATA SHEET

BLANK AVERAGE (FIBERS/100 FIELDS)	2.5	
CLEARANCE SAMPLES		
CLEARANCE LEVEL	<0.01	_

GLOVEBAG

PROJECT NO.

CLIENT:

PROJECT TITLE:

ENVIRONMENTAL MANAGEMENT RESOURCES

DATE: 9/19/2008

PROJECT MONITOR: John Starr

WORK AREA: Mile Marker 1331

Sample Number	Pump Number	Time On	Time Off	Total Minutes	Flow Rate (I/m - avg.)	Volume (liters)	Sample Location/Description	Fibers (-blank)	Flds	Fibers/cc	8 Hr. TWA Fibers/cc
17	-	- 6		-			Lab Blank	3.0	100	3=	-
18	_	1	8		-		Field Blank	2.0	100		
19	HV1	6:31	11:23	292	2.4	701	RP 15 OSHA R. Zimmerman	8.5	100	0.006	0.00
20	HV2	6:33	11:24	291	2.4	698	RP 15 OSHA J. Synnott			Occluded	
21	HV3	6:35	11:20	285	2.4	684	RP 15 OSHA R. Tucker	6.5	100	0.005	0.00
22	HV4	6:37	11:25	288	2.4	691	RP 15 OSHA M. Cosscurt			Occluded	3,132
23	HV5	6:39	11:30	291	2.4	698	RP 15 OSHA B. Van Den Burg			Occluded	
24	HV6	6:41	11:35	294	2.4	706	RP 15 OSHA K. Cox			Occluded	
Samples C John Starr	ollected By	(Name/	Signature)		Date: 9/19/2008		Received by (Name/Signature): Date:				
Received by (Name/Signature): Date:						(Laboratory) Analyzed by (Name/Signature): John Starr			Date:	9/19/2008	
Turnaround	d Time (X)	On-site	() Immed	iate () 24	4 Hour () N	ormal	Comments: OSHA sampling on RR workers on track work.				
Laboratory Receiving Notes: Custody Sample Seal Intact? Condition:											

ENCLOSURE	PAS
MINI-ENCLOSE	OR
ENCLOSURE 🔨	FAI
CEL EMBE AGE	

ASBESTOS AIR SAMPLING DATA SHEET

BLANK AVERAGE (FIBERS/100 FIELDS) 2.5 CLEARANCE SAMPLES CLEARANCE LEVEL < 0.01

16	- W	
	100	
	ORPO	RATED

DATE: 9/22/2008

PROJECT MONITOR: John Starr

WORK AREA: Mile Marker 1329.5

GLOVEBAG	<u> </u>	
PROJECT NO.	5539.110	EMR
PROJECT TITLE:	OSHA Air sampling	INCORPGRATED
OLIENT:	BNSF - Libby, MT	ENTIRORMENTAL MANAGEMENT RESOURCE

Sample Number	Pump Number	Time On	Time Off	Total Minutes	Flow Rate (I/m - avg.)	Volume (liters)	Sample Location/Description	Fibers (-blank)	Flds	Fibers/cc	8 Hr. TWA Fibers/cc
25	_ (4)	4.	•		-	40	Lab Blank	3.0	100	_	
26		(4)	<u>.</u>	-		4	Field Blank	2.0	100		-
27	HV1	6:21	13:21	420	2.4	1008	RP 15 OSHA R. Tucker	7.5	100	0.004	0.00
28	HV2	6:24	13:22	418	2.4	1003	RP 15 OSHA M. Eckstrom	9.5	100	0.005	0.00
29	HV3	6:26	13:17	411	2.4	986	RP 15 OSHA C. Christie	8.5	100	0.004	0.00
30	HV4	6:29	13:20	411	2.4	986	RP 15 OSHA J. Synnott	11.5	100	0.006	0.00
31	HV5	6:33	13:19	406	2.4	974	RP 15 OSHA B. Van Den Burg			Occluded	
32	HV6	6:36	13:19	403	2.4	967	RP 15 OSHA M. Cosscurt	9.5	100	0.005	0.00
Samples C John Starr	ollected By	(Name/	Signature)		Date: 9/22/2008		Received by (Name/Signature): Date:				0.00
Received b	Received by (Name/Signature): Date:					(Laboratory) Analyzed by (Name/Signature): Date:				9/22/2008	
Turnaround	d Time (X)	On-site	() Immed	iate () 24	Hour () N	ormal	Comments: OSHA sampling on RR worker	ers on track	work.	l	
₋aboratory	Receiving I	Notes:	Custody Seal Inta	ct?	Sample Condition:						
NWA = Ou	itside Work	Aron E	The second secon	Gt:		a Marie A	rea Enclosure			= 1 OE 1	

ENCLOSURE	
MINI-ENCLOSE	
NO ENCLOSURE	0
GLOVEBAG	

PROJECT TITLE:

CLIENT:



BNSF - Libby, MT

ASBESTOS AIR SAMPLING DATA SHEET

BLANK AVERAGE (FIBERS/100 FIELDS)

2.0 CLEARANCE SAMPLES CLEARANCE LEVEL < 0.01

PROJECT NO. 5539.110

OSHA Air sampling

ENVIRONMENTAL MANAGEMENT RESOURCES

DATE: 9/23/2008

PROJECT MONITOR: John Starr

WORK AREA: Mile Marker 1337

Sample Number	Pump Number	Time On	Time Off	Total Minutes	Flow Rate (I/m - avg.)	Volume (liters)	Sample Location/Description	Fibers (-blank)	Flds	Fibers/cc	8 Hr. TWA Fibers/cc
33		-			į	-	Lab Blank	2.0	1,00		ě.
34		1	11				Field Blank	2.0	100	-	-
35	HV1	6:31	11:20	289	2.4	694	RP 21 OSHA J. Crowe	8.0	100	0.006	0.00
36	HV2	6:32	12:10	338	2.4	811	RP 21 OSHA B. Robertson	11.0	100	0.007	0.00
37	HV3	6:35	12:05	330	2.4	792	RP 21 OSHA C. Combs	12.0	100	0.007	0.01
38	HV4	6:36	12:00	324	2.4	778	RP 21 OSHA C. Caven	8.0	100	0.005	0.00
39	HV5	6:38	12:08	330	2.4	792	RP 21 OSHA J. Garrett			Occluded	
40	HV6	6:40	12:08	328	2.8	918	RP 21 OSHA K. Harms			Occluded	
Samples C John Starr	ollected By	(Name/	Signature)		Date: 9/23/2008		Received by (Name/Signature): Date:				
Received by (Name/Signature): Date:						(Laboratory) Analyzed by (Name/Signature): Date:				9/23/2008	
Turnaround	d Time (X)	On-site	() Immed	iate () 24	4 Hour () No	ormal	Comments: OSHA sampling on RR works	ers on track	work.		
Laboratory	Receiving 1	Votes:	Custody Seal Inta		Sample Condition:						

ENCLOSURE	
MINI-ENCLOSE	
NO ENCLOSURE	œ

ASBESTOS AIR SAMPLING DATA SHEET

BLANK AVERAGE (FIBERS/100 FIELDS)

TRACE (FIBEROFIDO FIEEDS)	2.3	
CLEARANCE SAMPLES		
CLEARANCE LEVEL	< 0.01	

GLOVEBAG PROJECT NO.

PROJECT TITLE:

CLIENT:

PASS OR FAIL

OSHA Air sampling

BNSF - Libby, MT

5539.110

ENTIROPMENTAL MANAGEMENT RESOURGES

DATE: 9/24/2008 PROJECT MONITOR: John Starr

WORK AREA: Mile Marker 1339.5

Sample Number	Pump Number	Time On	Time Off	Total Minutes	Flow Rate (I/m - avg.)	Volume (liters)	Sample Location/Description	Fibers (-blank)	Flds	Fibers/cc	8 Hr. TWA Fibers/cc
41	-		-			_	Lab Blank	2.0	100	-	-
42	÷.			1	-	4	Field Blank	3.0	100	_	
43	HV1	6:22	13:09	407	2.4	977	RP 21 OSHA D. Johnson	8.5	100	0.004	0.00
44	HV2	6:24	13:15	411	2.4	986	RP 21 OSHA J. Crowe	7.5	100	0.004	0.00
45	HV3	6:25	13:11	406	2.4	974	RP 21 OSHA C. Caven	7.5	100	0.004	0.00
46	HV4	6:27	13:45	438	2.4	1051	RP 21 OSHA B. Robertson	6.5	100	0.003	0.00
47	HV5	6:29	13:12	403	2.4	967	RP 21 OSHA A. McKee			Occluded	
48	HV6	6:31	13:13	402	2.4	965	RP 21 OSHA D. Rodriguez			Occluded	
Samples C John Starr	ollected By	(Name/	Signature)		Date: 9/24/2008		Received by (Name/Signature): Date:				
Received by (Name/Signature): Date:						(Laboratory) Analyzed by (Name/Signature): Date:				9/24/2008	
Turnaround	d Time (X)	On-site	() Immed	iate () 24	Hour () N	ormal	Comments: OSHA sampling on RR worker	ers on track v	work.		01241Z000
Laboratory	Receiving	Notes:	Custody Seal Inta	ct?	Sample Condition:						

ENCLOSURE	PASS
MINI-ENCLOSE	OR
O ENCLOSURE	FAIL

ASBESTOS AIR SAMPLING DATA SHEET

BLANK AVERAGE (FIBERS/100 FIELDS) 2.0 CLEARANCE SAMPLES < 0.01 CLEARANCE LEVEL

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		-	H	5	Ň	ř	2	19			
- 3	ı			r	ŧ	ŧ			ŀ	d	
1	41	-	H	R			0	H	7	E	

DATE: 9/25/2008

PROJECT MONITOR: John Starr

WORK AREA: Mile Marker 1341

GLOVEBAG	4	
PROJECT NO.	5539.110	EMR
PROJECT TITLE:	OSHA Air sampling	INCORPORATED
CLIENT:	BNSF - Libby, MT	ENTIRORMENTAL MANAGEMENT RESOURCE

Number	On	Off	Total Minutes	Flow Rate (I/m - avg.)	Volume (liters)	Sample Location/Description	Fibers (-blank)	Flds	Fibers/cc	8 Hr. TWA Fibers/cc
	12.	-	-	- 0	ä	Lab Blank	2.0	100		-
	_		1.		Ψ.	Field Blank	2.0	100	_	
HV1	6:24	9:20	176	2.4	422	RP 15 OSHA J. Synnott	5.0	100	0.006	0.00
HV2	6:25	9:21	176	2.4	422	RP 15 OSHA R. Tucker	8.0	100	0.009	0.00
HV3	6:27	9:24	177	2.4	425	RP 15 OSHA M. Cosscurt 12.0 100		0.014	0.01	
HV4	6:29	9:23	174	2.4	418	RP 15 OSHA V. Bachmeier 11.0 100		0.013	0.00	
HV5	6:31	9:22	171	2.4	410	RP 15 OSHA R. Zimmerman				0.00
HV6	6:33	9:22	169	2.4	406	RP 15 OSHA K. Cox				0.00
llected By	(Name/S	Signature)		Date: 9/25/2008		Received by (Name/Signature):		1	Date:	1 0.00
Received by (Name/Signature): Date:						(Laboratory) Analyzed by (Name/Signature): Date:			Date:	9/25/2008
Time (X)	On-site () Immed	iate () 24	Hour () N	ormal	Comments: OSHA sampling on RR worke	ers on track v	work.	1	
Receiving I	Notes:	Custody Seal Inta		Sample Condition:						
1	HV1 HV2 HV3 HV4 HV5 HV6 Illected By (Name/Si	HV1 6:24 HV2 6:25 HV3 6:27 HV4 6:29 HV5 6:31 HV6 6:33 Ilected By (Name/Signature) Time (X) On-site (Receiving Notes:	HV1 6:24 9:20 HV2 6:25 9:21 HV3 6:27 9:24 HV4 6:29 9:23 HV5 6:31 9:22 HV6 6:33 9:22 Ilected By (Name/Signature) (Name/Signature): Time (X) On-site () Immed Receiving Notes: Custody Seal Inta	HV1 6:24 9:20 176 HV2 6:25 9:21 176 HV3 6:27 9:24 177 HV4 6:29 9:23 174 HV5 6:31 9:22 171 HV6 6:33 9:22 169 Ilected By (Name/Signature): (Name/Signature): Time (X) On-site () Immediate () 24 Receiving Notes: Custody Seal Intact?	HV1 6:24 9:20 176 2.4 HV2 6:25 9:21 176 2.4 HV3 6:27 9:24 177 2.4 HV4 6:29 9:23 174 2.4 HV5 6:31 9:22 171 2.4 HV6 6:33 9:22 169 2.4 Illected By (Name/Signature): Date: 9/25/2008 (Name/Signature): Date: 9/25/2008 Time (X) On-site () Immediate () 24 Hour () Name/Signal Intact? Sample Condition:	HV1 6:24 9:20 176 2.4 422 HV2 6:25 9:21 176 2.4 422 HV3 6:27 9:24 177 2.4 425 HV4 6:29 9:23 174 2.4 418 HV5 6:31 9:22 171 2.4 410 HV6 6:33 9:22 169 2.4 406 Ilected By (Name/Signature): Date: 9/25/2008 (Name/Signature): Date: 188	Field Blank RP 15 OSHA HV1 6:24 9:20 176 2.4 422 J. Synnott RP 15 OSHA HV2 6:25 9:21 176 2.4 422 R. Tucker RP 15 OSHA HV3 6:27 9:24 177 2.4 425 M. Cosscurt RP 15 OSHA HV4 6:29 9:23 174 2.4 418 V. Bachmeier RP 15 OSHA HV5 6:31 9:22 171 2.4 410 R. Zimmerman RP 15 OSHA HV6 6:33 9:22 169 2.4 406 K. Cox Illected By (Name/Signature): Date:	HV1	HV1 6:24 9:20 176 2.4 422 J. Synnott 5.0 100	Field Blank 2.0 100 - Field Blank 2.0 100 0.006 Field Blank 2.0 100

Asbestos

EMSL Rep:							
Your Company Name: EMSL Analytical, Inc. Street: 107 4 th Street West		Inc.	Bill to:	FY	AR Inc		
		st	Street:				
Box #:					-77	on carry	
City/State:		Libby, MT	Zip: 59923	City/State:	Ou	lute, mp.	Zip:
Phone Results to: Name:		Scott C	Corney	Fax Results to	Name:		
Telephone #: Project Name/N	umber:			Fax #: Purchase Orde	er #:		
•		MATRIX				RNAROUND	
Air	□ Soil		☐ Micro-Vac	□ 3 hrs	□ 6 Hours	☐ Same Day or 12 Hours*	24 Hours (1 day)
□ Bulk	☐ Drink	ing Water		☐ 48 Hours (2 days)	☐ 72 Hours (3 days)	□ 96 Hours (4 days)	(5 Days)
□ Wipe	☐ Waste	water		□ 144+ hours ((4 42/3)	(3 Days)
PCM - Air ☐ NIOSH 7400 ☐ OSHA w/ TV ☐ Other:	O(A) Issue 2: A WA	ugust 1994	TEM Air AHERA 40 NIOSH 740 EPA Level I	I	art E	TEM Water ☐ EPA 100.1 ☐ EPA 100.2 ☐ NYS 198.2	
PLM - Bulk EPA 600/R-93/116 EPA Point Count NYS Stratified Point Count PLM NOB (Gravimetric) NYS 198.1 NIOSH 9002			TEM Bulk Drop Mount Chatfield SO TEM NOB (pe 95 quantitative e
EMSL Stand	ard Addition k		PLM Soil EPA Protoco	l Qualitative		☐ Silica NIOSH 75	500
Qualitative Quantitative			☐ EPA Protocol Quantitative ☐ EMSL MSD 9000 Method fibers/gram		OTHER		
Client Sample # (s)						Total Samples #;	
Relinquished:		03		Date:	9/22/	09 Time:	15:41
Received:		R. K. M. a	horang Em	SA Date:	9/22/0	P Time:	1541

Asbestos

1435.2 L 1425.6 L
1425.6 L
11120 11
140.8
1420.8 - 1322.4 31.5 1329.6
1320
13224 -
1741.6
731 6984
691.2 v
698.4
705.6
29.5 974.4

Asbestos

EMSL Rep: Your Company Name: Street: Box #: City/State: Phone Results to: Name: Telephone #: Project Name/Number:		EMSL Analytical, 107 4 th Street Wo	Zip: 59923	Bill to: Street: City/State: Fax Results to: Fax#: Purchase Orde	Name:	Emil Inc Scott Comm Llut MN Zip:		
Air	☐ Soil	MATRIX	☐ Micro-Vac	☐ 3 hrs	□ 6 Hours	RNAROUND Same Day or 12 Hours*	□ 24 Hours (1 day)	
□ Bulk	☐ Drink	ing Water		☐ 48 Hours	□ 72 Hours	□ 96 Hours	A 120 Hours	
☐ Wipe	□ Waste	water		(2 days)	(3 days)	(4 days)	(5 Days)	
PCM - Air NIOSH 7400 OSHA w/ TO Other: PLM - Bulk EPA 600/R- EPA Point C NYS Stratifi PLM NOB (NIOSH 9002 EMSL Stand	93/116 Count ed Point Coun Gravimetric) NY	1	TEM Air AHERA 4 NIOSH 74 EPA Level LSD TEM Bulk Drop Mour Chatfield S TEM NOB EMSL Star	nt (Qualitative) OP – 1988-02 (Gravimetric) NYS 19 dard Addition		TEM Water □ EPA 100.1 □ EPA 100.2 □ NYS 198.2 TEM Microvac/W □ ASTM D 5755- □ Wipe Qualitativ XRD □ Asbestos □ Silica NIOSH 7	95 quantitative	
SEM Air or Bul	<u>k</u>		EPA Protoc	col Qualitative				
☐ Qualitative ☐ Quantitative				col Quantitative D 9000 Method fibers/gr	ram	OTHER		
Client Sample # (s) Relinquished: Received:	-	JA NY	isia /	Date:	7/3/00	Time:	1345	



Asbestos

SAMPLE NUMBER	SAMPLE DESCRIPTION/LOCATION	VOLUME (If Applicable)
39	9/23/08 OSHA mle Marke 19/23/08	1377. 752
40	9/23/08 OSHA mle Marke 1 9/23/08	118
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- America		
		_
s same and the same section of the same sectio	1/1 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2	

Asbestos

		- Paris I			1		
Your Company Name: EMSL Analytical, Inc.		M. Hardey	Bill to:		Scott Corney		
Street: 107 4 th Street West			Vest	Street:			
Box #:			50027	C:- /C) 7:
City/State:		Libby, MT	Zip: 59923	City/State:		enlutu, na	Zip:
Phone Results to: Name:		Scott C	de h. s. s	Fax Results to	: Name:		
Telephone #:		2000	a ray	Fax#:	7		
Project Name/N	umber:			Purchase Orde	er #:		J-
1 tojese tumor.	amber.	MATRIX			TUF	NAROUND	
Air	□ Soil		☐ Micro-Vac	□ 3 hrs	□ 6 Hours	☐ Same Day or 12 Hours*	24 Hours (1 day)
□ Bulk	□ Drink	king Water		48 Hours (2 days)	☐ 72 Hours (3 days)	☐ 96 Hours (4 days)	(5 Days)
☐ Wipe	□ Wast	ewater		☐ 144+ hours (1	
			to Price Quote	0 CED D. 4 7/2 C.L.	eal P	TEM Water	
□ NIOSH 740 □ OSHA w/ T □ Other:	0(A) Issue 2: A		TEM Air AHERA 4 NIOSH 74 EPA Leve TEM Bulk Drop Moun	nt (Qualitative)	art E	☐ EPA 100.1 ☐ EPA 100.2 ☐ NYS 198.2 TEM Microvac/Wi ☐ ASTM D 5755-	95 quantitative
NIOSH 740 OSHA w/ T Other: PLM - Bulk EPA 600/R EPA Point 0 NYS Stratif PLM NOB	0(A) Issue 2: 4 WA 93/116 Count fied Point Cour (Gravimetric) N	August 1994	TEM Air AHERA 4 NIOSH 74 EPA Leve TEM Bulk Drop Moun Chatfield S	102 Issue 2 1 II		EPA 100.1 EPA 100.2 NYS 198.2 TEM Microvac/Wi ASTM D 5755- Wipe Qualitativ XRD Asbestos	95 quantitative e
NIOSH 740 OSHA w/ T Other: PLM - Bulk EPA 600/R- EPA Point C NYS Stratif PLM NOB NIOSH 900 EMSL Stan	0(A) Issue 2: 4 WA 93/116 Count fied Point Cour (Gravimetric) N 2 dard Addition	August 1994 nt YS 198.1	TEM Air AHERA 4 NIOSH 74 EPA Leve TEM Bulk Drop Moun Chatfield S TEM NOB EMSL Star	102 Issue 2 1 II nt (Qualitative) COP - 1988-02 (Gravimetric) NYS 1		☐ EPA 100.1 ☐ EPA 100.2 ☐ NYS 198.2 TEM Microvac/Wi ☐ ASTM D 5755-☐ Wipe Qualitativ XRD ☐ Asbestos ☐ Silica NIOSH 7.	95 quantitative e
OSHA w/ T Other: PLM - Bulk EPA 600/R- EPA Point G NYS Stratif PLM NOB G NIOSH 900	0(A) Issue 2: A WA -93/116 Count fied Point Cour (Gravimetric) N 2 dard Addition	August 1994 nt YS 198.1	TEM Air AHERA 4 NIOSH 74 EPA Leve TEM Bulk Drop Moun Chatfield S TEM NOB EMSL Star	102 Issue 2 1 II nt (Qualitative) SOP – 1988-02 (Gravimetric) NYS 1 ndard Addition	98.4	EPA 100.1 EPA 100.2 NYS 198.2 TEM Microvac/Wi ASTM D 5755- Wipe Qualitativ XRD Asbestos	95 quantitative e
NIOSH 740 OSHA w/ T Other: PLM - Bulk EPA 600/R EPA Point 0 NYS Stratif PLM NOB NIOSH 900 EMSL Stan SEM Air or Bu	0(A) Issue 2: A WA -93/116 Count fied Point Cour (Gravimetric) N 2 dard Addition	August 1994 nt YS 198.1	TEM Air AHERA 4 NIOSH 74 EPA Leve TEM Bulk Drop Moun Chatfield S TEM NOB EMSL Star	102 Issue 2 1 II Int (Qualitative) SOP – 1988-02 (Gravimetric) NYS 1 Indard Addition col Qualitative col Quantitative	98,4 gram	☐ EPA 100.1 ☐ EPA 100.2 ☐ NYS 198.2 TEM Microvac/Wi ☐ ASTM D 5755-☐ Wipe Qualitativ XRD ☐ Asbestos ☐ Silica NIOSH 7.	95 quantitative e
NIOSH 740 OSHA w/ T Other: PLM - Bulk EPA 600/R EPA Point 0 NYS Stratif PLM NOB NIOSH 900 EMSL Stan SEM Air or Bu Qualitative	0(A) Issue 2: A WA -93/116 Count fied Point Cour (Gravimetric) N 2 dard Addition	August 1994 nt YS 198.1	TEM Air AHERA 4 NIOSH 74 EPA Leve TEM Bulk Drop Moun Chatfield S TEM NOB EMSL Star	102 Issue 2 1 II Int (Qualitative) SOP – 1988-02 (Gravimetric) NYS 1 Indard Addition col Qualitative col Quantitative	98,4 gram	EPA 100.1 EPA 100.2 NYS 198.2 TEM Microvac/Wi ASTM D 5755- Wipe Qualitativ XRD Asbestos Silica NIOSH 7. OTHER	95 quantitative e



Asbestos

	SAMPLE DESCRIPT	ON/LOCATION	VOLUME (If Applicable)
8/24/08	OS144	Mile Marker 1339.5	964
V	L		967
			one to the second of the secon
		3-3-3-F	
	<u> </u>	9.0	
			-work all the second
	9/24/08		SAMPLE DESCRIPTION/LOCATION Playlog OS/HA M. Ic Morker 1339.5 V L

ATTACHMENT C TEM ANALYTICAL DATA

Page 1 of 1

EMSL Analytical, Inc.

107 Haddon Avenue

Westmont, New Jersey 08108

Phone: (856) 858-4800 Fax: (856) 858-9551



To:	Scott Carney		Date:	January 19,	2009
	EMR, Inc.		From:	Charles E. I	LaCerra
	11 East Superior Street		Re:	Libby, MT	BNSF Work
	Suite 260			Mobile Lab	Analytical Reports
	Duluth, MN 55802			See Below	<u> </u>
	Phone: 763-277-5200				
We are se	nding you: × Atta	 iched	,	Under separ	ate cover via
	Solicitation	□ Сору	of Letter	`_	Invoice #'s See Below
	Subcontract	As no	oted		Other
	Laboratory Samples	Maly!	tical Repor	ts	
These are	transmitted as indicated Execute Original(s)	_	ew & Com	ment	For Approval
	ReturnOrginal(s)	As Re	equested		Respond as instructed
\boxtimes	For Your Information/File				Other
Remarks:					
-	please find one (1) copy of w and use for the above re		•	e lab analytic	al reports for analysis for
270800923	3				
Please feel	free to contact me with a	ny question	ns or if you	ı require addi	itional information
Conv to			Signed	Charles	LaCena

EMSL

INTERNAL CHAIN OF CUSTODY

9/23/2008 11:04:09 AM

Order ID: 270800923

Attn:

Scott Carney

EMR, Inc.

11 East Superior Street

Suite 260 Duluth, MN 55802

EMRI78

Customer ID: Customer PO:

Received:

09/22/08 3:41 PM

Fax:

(218) 625-2337

Phone: (218) 625-2332

EMSL Order:

270800923

6~0°9

BNSF Project:

Samples collected 9/17, 18, 19, & 22/2008

EMSL Proj ID:

BNSF Libby, MT 2008

Cust COC ID

Invoice to Burlington N. Santa Fe/BNSF Rlwy (BURL54), 2500 Lou Menk Drive, Fort Worth, TX 76131

TEM ISO 10312 120 Hour 13 Test: **Matrix** Air TAT: Qty: jwyattpescador Sisprsn: epodell Date: 9/22/2008 Acct Sts: Logged: Sample Acceptable BillingFrequency: With Report **Condition:** ☐ Unacceptable Comments ☐ Exempt from prep charge Date: ☐ Exempt from lab opening fee Prepped: ☐ Exempt from layer/aliquot charges Analyzed: Date: 1-R Data Entry: Date: Date: Screened: Mailed: a Date:

1000eis

Special Instructions

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270800923	270800923-0001	3 •		9/27/2008 3:41:00 PM
270800923	270800923-0002	6 •		9/27/2008 3:41:00 PM
270800923	270800923-0003	7 •		9/27/2008 3:41:00 PM
270800923	270800923-0004	8 •		9/27/2008 3:41:00 PM
270800923	270800923-0005	13 •		9/27/2008 3:41:00 PM
270800923	270800923-0006	14 •		9/27/2008 3:41:00 PM
270800923	270800923-0007	15 •		9/27/2008 3:41:00 PM
270800923	270800923-0008	16 -		9/27/2008 3:41:00 PM
270800923	270800923-0009	20 •		9/27/2008 3:41:00 PM
270800923	270800923-0010	22 •		9/27/2008 3:41:00 PM
270800923	270800923-0011	23 •		9/27/2008 3:41:00 PM
		1708-9	MR-49	

EMSL Analytical, Inc., 107 West 4th Street, Libby, MT 59923



385.0 mm2

BNSF 2008 Libby Site Investigation v32h TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

PARAMETERS

Status	Analyzed	Effective filter area	385.0 r
EPA Sample Number	3	Indirect factor	1.00E+00
QA Type	Not QA	Number of Grid Openings (amphibole)	10
Lab Sample Number	270800923-0001	Number of Grid Openings (chrysotile)	10
Sample Type	Air	Grid opening area	0.0130 r
Catagoni	C:-Id	\/akima (\ a= \\ a= \((a=0 \)	4405.01

0.0130 mm2 1435.2 L Volume (L) or Area (cm2) Category Field 2.06E-03 s/cc Ргер Direct Sensitivity (amphibole) Counting Rules 10312 Sensitivity (chrysotile) 2.06E-03 s/cc

Recording	Min. AR	Min length (um)	Min width (um)	Stopping	Target S	Max GOs	Max N
Rules:	≥ 3:1	0.5	none	Rules:	0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	0	0	0		
b	0	0	0		
С	0	0	0		
d	0	0	0		
е	0	0	o		
f	0	0	o		
Total	0	0	0	0	0

Check OK ок ОК Grand total OK 0

CONCENTRATION (s/cc)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	<dl< th=""><th><dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<></th></dl<>	<dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<>	<dl< th=""><th></th><th></th></dl<>		
b	<dl< th=""><th><dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<></th></dl<>	<dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<>	<dl< th=""><th></th><th></th></dl<>		
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d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<=.5	>= 5
	f	>10	<=.5	> = 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: 6 270800923-0002-1S0 09-30-08 D:xls

FILE TYPE: Original

Recording Rules:

Stopping Rules:

≥ 3:1	•	Minimum Aspect Ratio	0.002-10	Target Sensitivity
0.	50	Minimum Length (um)		GOs required to reach target sensitivity
л	one	Minimum Width (um)		Maximum # of GOs
			50	Maximum # of Structure
				1

Estimated # of GOs

TEM Asbestos Structure Count

BNSF 2008 Libby Site Investigation v32h

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Field
Filter Status	Analyzed 🔻

EPA Sample Number:	6	
Sample Type	Air	•
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1425.	6
Date received by lab	9/22/20	800
Lab Job Number:	270800	923
Lab Sample Number:	27080092	3-0002
Number of grids prepared	3	
Prepared by	R. Pesc	ador
Preparation date	9/25/20	800
EPA COC Number	0923	3

Analyzed by	R. Mahoney		
Analysis date	9/30/2008		
Prep	Oirect		
If sample type = air, is there loose material or debris in the	No 🔻		
Counting rules	ISO (Air or Dust)		
Grid storage location	2708-EMR-49, A		
Archive filter(s) storage location	Westmont		
F- factor			
QA Type	Not QA ▼		

F-factor Calculation: Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for senal dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial difution

ν

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

EPA SAMPLE ID: LAB SAMPLE ID: 3 270800923-0001 Sample Type Air
Count Rule 10312

Prep Direct

QA Type Not QA

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: QA by: QA date:

K. Lusher		
10/1/2008		

Target S	ensitivity	Reached-	Complete	current GC), then sto	p .	的 原品严格协和的								
Grid	Grid	Structure		tructures	Dimens		Identification		Mineral C	lass (b)		1 = ye	s, blank	= no	Fract. GO
Gild	Opening	Туре	Primary	Total	Length	Width		LĀ	OA	С	 Comments	Sketch	Photo	ED\$	Chrys.
1	G4	ND	L												
1	G6	ND		Ĺ					1						
1	G8	ND									!				
1	D4	ND									Same and a second secon				
1	D6	ND									 				
3	G3	ND							AL						a de propie de salo
3	G5	ND													
3	G7	ND			i										
3	G9	ND	I												
3	F8	ND					A STATE OF THE STA				L				i

SAMPLE ID

Analyzed

Status EPA Sample Number

Effective filter area Indirect factor

PARAMETERS

385.0 mm2

QA Type

Not QA

Number of Grid Openings (amphibole)

Number of Grid Openings (chrysotile)

1.00E+00

Lab Sample Number

270800923-0002

10

Sample Type

Аіг

10

Category

Field

Grid opening area 0.0130 mm2

Prep

Direct

Volume (L) or Area (cm2) 1425.6 L

Counting Rules

10312

Sensitivity (amphibole) Sensitivity (chrysotile)

2.08E-03 s/cc 2.08E-03 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	С	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0	ļ	}
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check Grand total OK 0

OK OK OK

CONCENTRATION (s/cc)

CONTRACTION (SIGO)								
Bin	LA	OA	С	PCME(all)	PCME(asb)			
а	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>					
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С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>					
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>					
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Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>			

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

FILE NAME: 6 270800923-0002 ISO 09-30-08 D.xls

FILE TYPE: Original

Recording Rules:

; ≥ 3:1

Stopping Rules:

			_		
3:1	Minimum Aspect Ratio	0.00240			
0.50	Minimum Length (um)	9			
none	Minimum Width (um)		N		

Target Sensitivity 3Os required to reach arget sensitivity Maximum # of GOs Maximum # of Structure

Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

ν

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	E
Instrument	JEOL 100 CX (30)	S
Voltage (KV)	100 kV	Ai (c
Magnification	19,000 X	D
Grid opening area (mm2)	0.0130	Lá
Scale: 1L =	1.000	La
Scale: 1D =	1.000	N
Primary filter area (mm2)	385.0	P
Secondary Filter Area (mm2)	360.0	P
Category	Field	E
Filter Status	Analyzed 🔻	

EPA Sample Number:	6	
Sample Type	· Alr	•
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1425	.6
Date received by lab	9/22/2	800
Lab Job Number:	270800	923
Lab Sample Number:	27080092	3-0002
Number of grids prepared	3	
Prepared by	R. Pesc	ador
Preparation date	9/25/2	800
EPA COC Number	092	3

Analyzed by	R. Mahoney	
Analysis date	9/30/2008	
Prep	Direct	_
Ir sample type – all, is there loose material or debris in the	No T	_
Counting rules	ISO (Air or Dust)	_
Grid storage location	2708-EMR-49, A	4
Archive filter(s) storage location	Westmont	
F- factor		
QA Type	Not QA	•

EPA SAMPLE ID: LAB SAMPLE ID: 6 270800923-0002 Sample Type Air Count Rule 10312

QA by:

Direct align and the same Prep QA Type Not QA

ERROR CHECK OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/1/2008

K. Lusher QA date: 10/2/2008

	2072831472914R3R824R4H2D24H4MH4A2H4D1MA2H4W2H8H2H8A32G22C	
Target Sensit	ivity Reached-Complete current Go	O then stop

	Grid	Structure		tructures		ions (a)	(11 min - 1 mi		Mineral C	lace (h)		1 = vo	s, blank :	= 00	Fract. GO
Grid	Opening	Type		Total		\rightarrow	Identification			0			Dhoto	EDS	Chara
	Opening	1 ype	Primary	TOTAL	Length	Width		LA_	OA_	<u> </u>	Comments	Sketch	Piloto		Crirys.
1	E9	ND				Language and the same			: 	'. 					
1_	E7	ND .		L											
1	E5_	ND	1.												
1	E3	_ ND_													
1	E1	ND										į			
2	G2	ND	heire a service con con						Ĺ						
2	G4	ND							·!						
2	G6	ND	Ĺ					i							
2	G8	ND													
2	E9	ND													

PARAMETERS

Status **EPA Sample Number**

Effective filter area Analyzed

385.0 mm2

QA Type

SAMPLE ID

Not QA

1.00E+00 Indirect factor

Lab Sample Number

270800923-0003

Number of Grid Openings (amphibole) 10 Number of Grid Openings (chrysotile)

10

Sample Type

Air Field Grid opening area 0.0130 mm2

Category Prep

Volume (L) or Area (cm2) Sensitivity (amphibole) 2.08E-03 s/cc

1425.6 L

Counting Rules

Direct 10312

Sensitivity (chrysotile)

2.08E-03 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N	
0.0024		50	

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
а	0	0	0		
b	0	0	0		ŀ
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		

Check Grand total

OK 0

OK OK

CONCENTRATION (s/cc)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
b	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
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Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

FILE NAME: 7 270800923-0003 ISO 09-30-08 D.XIS

FILE TYPE: Original

• Recording Rules:

≥ 3:1 🔻 0.50

none

Stopping Rules:

Minimum Aspect Ratio	0.00240	Target
Minimum Aspect Ratio Minimum Length (um)	9	GOs re target
Minimum Width (um)		Maxim

Sensitivity

0.00240	I arget densitivity
1.0	GOs required to reach
9.	GOs required to reach target sensitivity
	Maximum # of GOs
50	Maximum # of Structure

Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

input for Ashing of Secondary Filter

Fraction of	secondary	filter used	for	ashing

F-factor

Grid opening traverse direction:

٧

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	EPA Sample Number:	7	
Instrument	JEOL 100 CX (30)	Sample Type	Air 🔻	
Voltage (KV)	100 kV	Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1425.6	
Magnification	19,000 X	Date received by lab	9/22/2008	
Grid opening area (mm2)	0.0130	Lab Job Number:	270800923	
Scale: 1L =	1.000	Lab Sample Number:	270800923-0003	
Scale: 1D =	1.000	Number of grids prepared	3	
Primary filter area (mm2)	385.0	Prepared by	R. Pescador	
Secondary Filter Area (mm2)	360,0	Preparation date	9/25/2008	
Category	Field	EPA COC Number	0923	
Filter Status	Analyzed			

Analyzed by	R. Mahoney			
Analysis date	9/30/2008			
Prep	Direct	•		
loose material or debris in the	No	•		
Counting rules	ISO (Air or Oust)	•		
Grid storage location	2708-EMR-49	В		
Archive filter(s) storage location	Westmont			
F- factor		12		
QA Type	Not QA	•		

EPA SAMPLE ID: LAB SAMPLE ID: 7 270800923-0003 Sample Type Air. Sample Type Count Rule 10312

Prep Direct

QA Type Not QA

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/1/2008 QA by: QA date: K. Lusher 10/2/2008

Technique de la company de la	#0326660916100000100000666661420#	
Target Sensitivity Reached-	Complete current C	30. Then Stop: Walking the Control of the Control o

1,5		110000.00	100,000	CX TIPL XXXXX	19 (20.5%	3 -3-13 HIPC, ID-14 HIPE	In the state of the Report Marie									
Grid	Grid	Structure	No. of S	tructures	Dimens	sions (a)	Identification		Mineral C	lass (b)			1 = ye	s, blank :	= по	Fract. GO
Gila	Opening	Туре	Primary	Total	Length	Width		LA	OA	С		Comments	Sketch	Photo	EDS	Chrys.
1	H9	ND														
1_	H7	ND												i		
1	H5	ND	,							L						
_ 1	H3	ND]. ·					İ					La constant de marc
1	H1_	ND			i				!	:- :						. :
2	D9	ND									i					
2	D7	ND											.i .:			
2	D5	ND				<u>'</u>				!	i il					
2	D3	ND														
2	D1	ND				1						<u> </u>		4		1 :

SAMPLE ID

Status

Category

Prep

Analyzed

Not QA 270800923-0004

10312

QA Type Lab Sample Number Sample Type

EPA Sample Number

Field Direct

Counting Rules

PARAMETERS

Effective filter area Indirect factor

1.00E+00 10

Number of Grid Openings (amphibole) Number of Grid Openings (chrysotile)

10

385.0 mm2

Grid opening area 0.0130 mm2 Volume (L) or Area (cm2) 1420.8 L

Sensitivity (amphibole) Sensitivity (chrysotile)

2.08E-03 s/cc 2.08E-03 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)		
≥ 3:1	0.5	none		

OK

Stopping Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	0	0	0		
b	0	0	0	ŀ	
С	0	0	0		
ď	0	0	0		
е	0	О	0		
f	0	0	0		,
Total	0	0	0	0	0
Check	ок	OK	ОК		

Check OK Grand total 0

CONCENTRATION (s/cc)

Bin	LA	OA	С	PCME(all)	PCME(asb)
a	<dl< th=""><th><dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<></th></dl<>	<dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<>	<dl< th=""><th></th><th></th></dl<>		
b	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

FILE NAME: 8_270800923-0004 ISO 09-30-08 D.xls

EMSL27

JEOL 100 CX

(30)

100 kV

19,000 X

0.0130

1.000

1.000

385.0

360.0

FILE TYPE: Original

R. Mahoney

9/30/2008

2708-EMR-49. B

Not QA

▾

Recording Rules:

Stopping Rules:

Minimum Aspect R	atio	0.002-10	Target Sensitivity
Minimum Length (ım) 🛭		GOs required to reach target sensitivity
Minimum Width (u	m)		Maximum # of GOs
		50	Maximum # of Structure
	_ h	1 (f. m Tam te	1

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial

Inputs for Serial Dilutions

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

0.50 none

Estimated # of GOs

F-factor Calculation:

(cm2), or dustfall container area Prep Olrect 1420.8 ii sampie type – air, is triere Date received by lab 9/22/2008

Analyzed by

Analysis date

Grid storage location

QA Type

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Аĭг

8

270800923

270800923-0004

3

R. Pescador

9/25/2008

0923

loose material or debris in the No

Counting rules ISO (Air or Dust)

Archive filter(s) storage location Westmont

F- factor

Field EPA COC Number

Preparation date

Prepared by

EPA Sample Number:

Air volume (L), dust sample area

Sample Type

Lab Job Number:

Lab Sample Number:

Number of grids prepared

Filter Status Analyzed

COMMENTS

Primary filter area (mm2)

Secondary Filter Area (mm2)

Category

Laboratory name:

Instrument

Voltage (KV)

Magnification

Scale: 1L =

Scale: 1D =

Grid opening area (mm2)

Second resuspension volume (mL)

dilution

EPA SAMPLE ID: LAB SAMPLE ID: 8 270800923-0004 Sample Type Air Count Rule 10312 Prep Direct

QA Type Not QA

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/1/2008 QA by: K. <u>Lusher</u>
QA date: 10/2/2008

######################################	(<u>121</u> 8)381111123499913211	same diministration	san dimagnise beloegs grand grand in	mendali alla di di di	Actoricans and an arrangement of the contract
Target Sensitivity	Reached-	Complete o	current GO. then	Stop.	

Grid	Grid	Structure	No. of S	tructures	Dimensions (a)		Identification		Mineral Class (b)				1 = yes, blank = no			Fract. GO
L	Opening	Туре	Primary	Total	Length	Width		LA	OA	С	NAM	Comments	Sketch	Photo	EDS	Chrys.
1_	G2	ND							i		j					
1	G4	ND						·† '								
1	G6	ND			ii			Ĺ.,	Ji		li.					
1	G8	ND										L.'				
1	G10	ND					i		il	1	i					
2	H9	ND				*****			_							
2	H7	ND									1					
2	H5	ND .		5								2				
2	Н3	ND		-		,		!	i							
2	H1	ND														



SAMPLE ID

PARAMETERS

Status	Analyzed
EPA Sample Number	13
QA Type	Not QA
Lab Sample Number	270800923-0005

Effective filter area 385.0 mm2
Indirect factor 1.00E+00
Number of Grid Openings (amphibole) 10
Number of Grid Openings (chrysotile) 10
Crid appring area. 0.0130 mm2

Lab Sample Number 270800
Sample Type Air
Category Field
Prep Direct

Grid opening area 0.0130 mm2

Volume (L) or Area (cm2) 1322.4 L

Sensitivity (amphibole) 2.24E-03 s/cc

Sensitivity (chrysotile) 2.24E-03 s/cc

Recording Rules:

Counting Rules

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

10312

Stopping Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	_C	PCME(all)	PCME(asb)
а	0	0	0		
b	0	0	0		
С	0	0	0		
ď	0	0	0		
е	0	0	0		
f	0	0	О		
Total	0	0	0	0	0
Check	ОК	OK	OK		

Check OK OK Grand total 0 OK

CONCENTRATION (s/cc)

<u>Bi</u> n	LA	OA	C	PCME(all)	PCME(asb)
а	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
b	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td> </td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td> </td></dl<></td></dl<>	<dl< td=""><td></td><td> </td></dl<>		
е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	C		>.5	>= 5
	ď	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

13_270800923-0005 ISO 09-30-08 D.xls

FILE NAME: 13_270800923-0005 ISQ 09-30-08 D.xls

ILE TYPE. Original

Recording Rules:

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27			
Instrument	JEOL 100 CX (30)			
Voltage (KV)	100 kV			
Magnification	19,000 X			
Grid opening area (mm2)	0.0130			
Scale: 1L =	1.000			
Scale: 1D =	1.000			
Primary filter area (mm2)	385.0			
Secondary Filter Area (mm2)	360.0			
Category Field				
Filter Status	Analyzed 🔻			

COMMENTS

13			
Air	•		
1322.4			
9/22/2008			
270800923			
270800923	3-0005		
3			
R. Pesca	ador		
9/25/20	800		
0923	3		
	Alr 1322. 9/22/20 270800923		

Analyzed by	R. Mahoney					
Analysis date	9/30/2008					
Prep	Direct	_				
It sample type – all, is there loose material or debris in the cowl?	No	_				
Counting rules	ISO (Air or Dust)	_				
Grid storage location	2708-EMR-49, (>				
Archive filter(s) storage location	Westmont					
F- factor						
QA Type	Not QA	,				

≥ 3:1 Minimum Aspect Ratio Target Sensitivity 0.00240 GOs required to reach 0.50 Minimum Length (um) 10 target sensitivity Minimum Width (um) Maximum # of GOs Maximum # of Structure 10 Estimated # of GOs F-factor Calculation: Indirect Prep Inputs Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate volume (mL) Volume applied to secondary filter (mL) or used for serial Inputs for Serial Dilutions Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing F-factor

Grid opening traverse direction:

Stopping Rules:

EPA SAMPLE ID: LAB SAMPLE ID: 13 270800923-0005

Sample Type Count Rule 10312

Prep Direct

QA Type Not QA

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/1/2008 QA by: QA date: K. Lusher 10/2/2008

Target S	ensitivity	Reached-	Complete	current GC), then sto	p									_	
Grid	Grid	Structure	No. of Structures		Dimensions (a)		Identification	Mineral Class (b)					1 = yes, blank = no			Fract. GO
- Only	Opening	Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Comments	Sketch	Photo	EDS	Chrys.
1	D9	ND						L					·	i		
1_	D7_	ND			i					i		1				
1	D5	ND		1										i		
1	D3	ND														
1	D1	ND							Ĺ		Ĺ					
2	H2	ND	harman and a common result				İ			i		;	;			
2_	H4	ND			i , , ,) h							i
2	H6	ND											i			
2	H8	ND														
2	H10	ND													i	

SAMPLE ID

Status

QA Type

Analyzed

14

Not QA

270800923-0006

Lab Sample Number Sample Type

EPA Sample Number

Аіг Field Category Ргер Direct Counting Rules 10312 **PARAMETERS**

Effective filter area 385.0 mm2 1.00E+00 Indirect factor Number of Grid Openings (amphibole) 10 Number of Grid Openings (chrysotile) 10

Grid opening area 0.0130 mm2 Volume (L) or Area (cm2) 1320 L Sensitivity (amphibole) 2.24E-03 s/cc

Sensitivity (chrysotile) 2.24E-03 s/cc

Recording Rules:

Min. AR Min length (um) Min width (um) ≥ 3:1 0.5 none

Stopping Rules:

Target S Max GOs Max N 0.0024 50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		1
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

Check OK OK OK Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	С	PCME(all)	PCME(asb)
a	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
b	<dl< td=""><td><dl< td=""><td><dl< td=""><td>]</td><td>[</td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>]</td><td>[</td></dl<></td></dl<>	<dl< td=""><td>]</td><td>[</td></dl<>]	[
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
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е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
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Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

	(1) 建设计划外汇 标题的标准设置标准设置。		
FILE NAME:	14 270800923-0006 ISO 09-30-08 D.xls	. 5	

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27			
Instrument	JEOL 100 CX (30)			
Voltage (KV)	100 kV			
Magnification	19,000 X			
Grid opening area (mm2)	0.0130			
Scale: 1L =	1.000			
Scale: 1D =	1.000			
Primary filter area (mm2)	385.0			
Secondary Filter Area (mm2)	360.0			
Category	Field			
Filter Status	Analyzed -			

COMMENTS

EPA Sample Number:	14			
Sample Type	Air	•		
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1320.0			
Date received by lab	9/22/20	800		
Lab Job Number:	270800	270800923		
Lab Sample Number:	270800923	3-0006		
Number of grids prepared	3			
Prepared by	R. Pesc	ador		
Preparation date	9/25/20	108		
EPA COC Number	0923			

		_		
Analyzed by	R. Mahoney			
Analysis date	9/30/2008			
Prep	Direct	▼		
in sample type – air, is there loose material or debris in the cowl?	No	•		
Counting rules	ISO (Air or Dust)	•		
Grid storage location	2708-EMR-49, C			
Archive filter(s) storage location	Westmont			
F- factor				
QA Type	Not QA	•		

none Minimum Width (um) 50 10 F-factor Calculation: Indirect Prep Inputs Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Inputs for Serial Dilutions Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial ditution

input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

٧

Stopping Rules:

10

0.00240 Target Sensitivity

GOs required to reach

Maximum # of Structure

target sensitivity

Maximum # of GOs

Estimated # of GOs

F-factor

Recording Rules:

0.50

≥ 3:1 Minimum Aspect Ratio

Minimum Length (um)

Grid opening traverse direction:

EPA SAMPLE ID: 14 270800923-0006 270800923-0006

Sample Type Count Rule 10312

Prep Direct

QA Type Not QA

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/1/2008 QA by: K. Lusher
QA date: 10/2/2008

(445)(21) (45)(41) (24)(40) (41) (25)	10-20-00-00-00-00-00-00-00-00-00-00-00-00	\$1551.955441.47345468682322342344033410178884 9 141114138	ш
Tarmot Conciti	with Peached Comple	oto current Couthen ston	а.
Maiderocusin	AITA L'EUCHERLECHINI	ete current GO, then stop.	aı

(14)3-40)2-5-400		17)1-1-1-1-1-1-1))	14 4(0,0,0,0 411-74			HEATTER THE CHARLES AND THE									
Grid	Grid	Structure	No. of S	tructures	Dimens	sions (a)	Identification		<u>Mineral C</u>	lass (b)			1 = ye	s, blank :	= no	Fract. GO
Gild	Opening	Туре	Primary	Total	Length	Width		LA	OA	С		Comments	Sketch	Photo	EDS	Chrys.
1	H2	ND		1	[;				
_ 1	H4	ND							Lan transfer							
1	H6	ND									İ		i			
1	H8	ND	L.,									the state of the s				Bananan
1	H10	ND								it Designation						
_ 2	H2	ND				:				1						
2	H4	ND														
2	H6	ND									L			1		
2	H8	ND														
2	H10	ND			: .			n e			1					

Version

BNSF 2008 Libby Site Investigation v32h TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status Analyzed EPA Sample Number 15 QA Type Not QA

Lab Sample Number

Sample Type Field Category Prep Direct 10312

Counting Rules

PARAMETERS

Effective filter area 385.0 mm2 Indirect factor 1.00E+00 Number of Grid Openings (amphibole) 10 Number of Grid Openings (chrysotile) 10

Grid opening area

0.0130 mm2 Volume (L) or Area (cm2) 1322.4 L Sensitivity (amphibole) 2.24E-03 s/cc

Sensitivity (chrysotile)

2.24E-03 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

270800923-0007

Stopping Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	0	0	0		
Ь	0	0	0		
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	ОК		

Check OK OK Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	С	PCME(all)	PCME(asb)
a	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
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е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5	_	>= 5
C = Chrysotile	с		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

15_270800923-0007 ISO 09-30-08_D.xls

FILE NAME: 15-270800923-0007 ISO 09-30-08 D.xis

Recording Rules:

Stopping Rules:

İ	≥ 3:1	~	Minimum Aspect Ratio	0.00240	Target Sensitivity
	0.5	0	Minimum Length (um)	10	GOs required to read target sensitivity
	non	e	Minimum Width (um)		Maximum # of GOs
				50	Maximum # of Struct

10 Estimated # of GOs

BNSF 2008 Libby Site Investigation v32h **TEM Asbestos Structure Count**

Laboratory name:	EMSL27		
Instrument	JEOL 100 CX (30)		
Voltage (KV)	100 kV		
Magnification	19,000 X		
Grid opening area (mm2)	0.0130		
Scale: 1L =	1.000		
Scale: 1D =	1.000		
Primary filter area (mm2)	385.0		
Secondary Filter Area (mm2)	360.0		
Category	Fleld		
Filter Status	Analyzed 🔻		

EPA Sample Number:	15	
Sample Type	Alr	•
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1322	4
Date received by lab	9/22/20	800
Lab Job Number:	270800	923
Lab Sample Number:	27080092	3-0007
Number of grids prepared	3	
Prepared by	R. Pesc	ador
Preparation date	9/25/20	800
EPA COC Number	0923	3

Analyzed by	R. Mahoney		
Analysis date	9/30/2008		
Prep	Direct		
l sample type – air, is there loose material or debris in the cowl2	No 🔻		
Counting rules	ISO (Air or Dust)		
Grid storage location	2708-EMR-49, D		
Archive filter(s) storage location	Westmont		
F- factor	1.1.1.1		
QA Type	Not QA		

F-factor Calculation: Indirect Prep inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

٧

EPA SAMPLE ID: LAB SAMPLE ID: 15 27,0800923-0007 Sample Type Count Rule 10312 Prep Direct QA Type Not QA

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/1/2008 QA by: K. Lusher QA date: 10/2/2008

Γ		Crid	Ctenatura	No. of Chrystures	Dimonoicos (a)	
	Target S	ensitivity	Reached	Complete current GO), then stop.	

	Grid	Structure		tructures		ions (a)	tanananome <u>anananan</u>		Mineral C	lass (b)			1 = ve	s, blank =	= no	Fract. GO
Grid	Opening	Туре	Primary	Total	Length	Width	Identification	LA	OA	C		Comments	Sketch	Photo	EDS	Chrys.
1	C2	ND									Ĺ					
1	C4	ND						Ĺ	ì							
1	C6	ND	i'						<u> </u>							
1	C8	ND			1											
1	C10	ND		i	i											
2	B2	ND			!			 								
2	B4	ND														
_ 2	B6	ND		: 			· .			i			!			
2	B8	ND														
2	B10	ND				ke galar sa					i :					<u>. </u>

Versio

BNSF 2008 Libby Site Investigation v32h TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

QA Type

PARAMETERS

Status **EPA Sample Number**

Lab Sample Number

Analyzed 16

Direct

Not QA

Sample Type Category Prep Counting Rules 270800923-0008 Air Field

10312

Effective filter area Indirect factor

385.0 mm2 1.00E+00

Number of Grid Openings (amphibole) 10 Number of Grid Openings (chrysotile) 10

0.0130 mm2 Grid opening area Volume (L) or Area (cm2) 1341.6 L

Sensitivity (amphibole) 2.21E-03 s/cc Sensitivity (chrysotile) 2.21E-03 s/cc

Recording Rules:

Min length (um) Min width (um) Min. AR ≥ 3:1 0.5 none

Stopping Rules:

Target S Max GOs Max N 0.0024 50

COUNTS (based on countable structures only)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	0	0	0		
b	0	0	0		
С	0	0	0		
d	0	o	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	ОК	OK		

OK OK Check OK Grand total 0

CONCENTRATION (s/cc)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	<dl< td=""><td><dl< td=""><td><dl< td=""><td>_</td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>_</td><td></td></dl<></td></dl<>	<dl< td=""><td>_</td><td></td></dl<>	_	
b	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	C	_	>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

FILE NAME: 16 270800923-0008 ISO 09-30-08 D.xls

FILE TYPE: Original

Recording Rules:

≥ 3:1 Minimum Aspect Ratio 0.50 Minimum Length (um) Minimum Width (um) none

Stopping Rules:

)	0.00240	Target Sensitivity
	10	GOs required to reach target sensitivity
		Maximum # of GOs
	50	Maximum # of Structur
	40	Estimated # of GOs

BNSF 2008 Libby Site Investigation v32h **TEM Asbestos Structure Count**

Laboratory name:	EMSL27		
Instrument	JEOL 100 CX (30)		
Voltage (KV)	100 kV		
Magnification	19,000 X		
Grid opening area (mm2)	0.0130		
Scale: 1L =	1.000		
Scale: 1D =	1.000		
Primary filter area (mm2)	385.0		
Secondary Filter Area (mm2)	360.0		
Category	Fleid		
Filter Status	Analyzed		

EPA Sample Number:	18		
Sample Type	Alr	•	
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	1341.6		
Date received by lab	9/22/2008		
Lab Job Number:	270800923		
Lab Sample Number:	270800923-000		
Number of grids prepared	3		
Prepared by	R. Pescador		
Preparation date	9/25/2008		
EPA COC Number 0923			

Analyzed by	R. Mahoney		
Analysis date	9/30/2008	3	
Prep	Direct	•	
loose material or debris in the	No	•	
Counting rules	ISO (Air or Dust)	•	
Grid storage location	2708-EMR-49, D		
Archive filter(s) storage location	Westmont		
F- factor			
QA Type	Not QA	•	

F-factor Calculation: Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate volume (mL) Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction: ٧

EPA SAMPLE ID: LAB SAMPLE ID: 16 270800923-0008 Sample Type
Count Rule
10312

Prep Direct

QA Type Not QA

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/1/2008 QA by: K. Lusher
QA date: 10/2/2008

military and internal property is	102201.30 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	naga tammanakukonyulamenduninenkantisisinya istalisisisi
Tarnet Sensitivity	Reached-Complete current GO	
III at der deligitier	incaciled complete current co	and techniques of months and the second seco

III.GL GCL	at Geriotrativity in each exploit there is no content of communications and the communications and the content of content															
Grid	Grid	Structure	No. of S	tructures	Dimens	ions (a)	Identification		Mineral C	lass (b)			1 = ye	s, blank:	= no	Fract. GO
	Opening	Туре	Primary	Total	Length	Width		LA	OA	С	NAM	Comments	Sketch	Photo	EDS	Chrys.
1	G1	ND											! i			:
1	G3	ND			-	:										
1	G5	ND														:
1	G7	ND												,		
1	9 G	ND											,			
2	12	ND				***************************************				!:						
2	14	ND								i!						
2	16	ND										í				
2	- 18	ND														
2	110	ND														

SAMPLE ID

Status

Analyzed 20

EPA Sample Number 20 QA Type Not QA

Lab Sample Number

270800923-0009

Sample Type Air
Category Field
Prep Direct
Counting Rules 10312

PARAMETERS

Effective filter area Indirect factor

385.0 mm2

1.00E+00 19

Number of Grid Openings (amphibole) Number of Grid Openings (chrysotile)

19

Grid opening area

0.0130 mm2

Volume (L) or Area (cm2) Sensitivity (amphibole) 698.4 L 2.23E-03 s/cc

Sensitivity (chrysotile)

2.23E-03 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	L.A	OA	С	PCME(all)	PCME(asb)
а	0	0	0		
b	0	0	0	l	
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	ОК	OK	OK		

Check OK OK Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
b	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			< 5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

20 270800923-0009 ISO 09-30-08 D.xls

FILE NAME: 20_270800923-0009_1SO_09-30-08_DIXS

FILE TYPE: Original

Recording Rules:

Stopping Rules:

			_
≥ 3:1	Minimum Aspect Ratio	U.UU	Target Sensitivity
0.50	Minimum Length (um)		GOs required to reach target sensitivity
none	Minimum Width (um)		Maximum # of GOs
		50	Maximum # of Structur
		2.79(0).520(9)	

18 Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of	secondary	filter	used	for	ashir	ıg

F-factor

Grid opening traverse direction:

٧

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory пате:	EMSL27	EPA Sample Number:
Instrument	JEOL 100 CX (30)	Sample Type
Voltage (KV)	100 kV	Air volume (L), dust sample area (cm2), or dustfall container area (cm2)
Magnification	19,000 X	Date received by lab
Grid opening area (mm2)	0.0130	Lab Job Number:
Scale: 1L =	1.000	Lab Sample Number:
Scale: 1D =	1.000	Number of grids prepared
Primary filter area (mm2)	385.0	Prepared by
Secondary Filter Area (mm2)	360.0	Preparation date
Category	Field :	EPA COC Number
Filter Status	Analyzed	

Sample Number:	20	Analyzed by	R. Mahoney			
ple Type Air 🔻		Analysis date	9/30/2008			
olume (L), dust sample area :), or dustfall container area :)	698.4	Prep	Direct -			
received by lab	9/22/2008	loose material or debris in the	No 🔻			
Job Number:	270800923	Counting rules	ISO (Air or Dust)			
Sample Number:	270800923-0009	Grid storage location	2708-EMR-49, E			
nber of grids prepared	3	Archive filter(s) storage location	Westmont			
pared by	R. Pescador					
paration date	9/25/2008	F- factor				
COC Number	0923	QA Type	Not QA			

EPA SAMPLE ID: LAB SAMPLE ID: 20 270800923-0009 Sample Type Air Count Rule 10312

Prep Direct QA Type Not QA

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/1/2008 QA by: K. Lus QA date: 10/2/20

K. Lusher 10/2/2008

Target	ensitivity.	Reached-	Complete	current GC), then sto	p.						J				
Grid	Grid	Structure	No. of S	tructures	Dimens	ions (a)	Identification		Mineral (Class (b)			1 = ye	s, blank :	= no	Fract. GO
01.0	Opening	Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Comments	Sketch	Photo	EDS	Chrys.
1	D9	ND							<u> </u>		i					
1	D7	ND_														
1_	D5_	ND							· ·					i		
1	D3	ND		i][
_ 1	D1	ND						L								7.1.: FVW 3
1	H9	ND			1											
1	H7	ND										i.				
1	H5	ND .									- F		h			i
1	H3	ND									1					
1	H1	ND									L					
2	12	ND														
2	14	ND]						1
2	<u> 16</u>	ND									1					
2	18	ND_									L					
2	110	ND											1			
2	G4	ND	L-11.													i
2	G6	ND	14													
2	G8	ND														
2	G10	ND									1					

SAMPLE ID

PARAMETERS

Status Analyzed **EPA Sample Number** 22 QA Type Not QA

Effective filter area 385.0 mm2 Indirect factor 1.00E+00 Number of Grid Openings (amphibole) 19

Lab Sample Number

Number of Grid Openings (chrysotile) 19

Sample Type

Air Category Field Direct Prep

Grid opening area 0.0130 mm2 Volume (L) or Area (cm2) 691.2 L

Counting Rules

Sensitivity (amphibole) 10312 Sensitivity (chrysotile)

2.26E-03 s/cc 2.26E-03 s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

270800923-0010

Stopping Rules:

Target S	Max GOs	Max N
0.0024		50

COUNTS (based on countable structures only)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	0	0	0		
ь	0	0	0		
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		

Check OK OK Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	<dl< th=""><th><dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<></th></dl<>	<dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<>	<dl< th=""><th></th><th></th></dl<>		
b	<dl< th=""><th><dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<></th></dl<>	<dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<>	<dl< th=""><th></th><th></th></dl<>		
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

FILE NAME: 22 270800923-0010 ISO 09-30-08 D.xis

FILE TYPE: Original

Recording Rules:

Stopping Rules:

Target Sensitivity GOs required to reach target sensitivity
 Maximum # of GOs

Minimum Length (um) Minimum Width (um)

Maximum # of Structure

. 18 Estimated # of GOs

F-factor Calculation:

0.50

none

Indirect Prep Inputs Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL	27	EPA Sample Number:
Instrument	JEOL 10		Sample Type
Voltage (KV)	100 k	٧V	Air volume (L), dust sample area (cm2), or dustfall container area (cm2)
Magnification	19,000	χ	Date received by lab
Grid opening area (mm2)	0.0130		Lab Job Number:
Scale: 1L =	1.00	0	Lab Sample Number.
Scale: 1D =	1.00	0	Number of grids prepared
Primary filter area (mm2)	385.	0	Prepared by
Secondary Filter Area (mm2)	360.	0	Preparation date
Category	Fleid	•	EPA COC Number
Filter Status	Analyzed	•	

22	Analyzed by	P. Mahoney 9/30/2008				
Air	Analysis date					
691.2	Prep	Direct -				
9/22/2008	In sample type – arr, is there loose material or debris in the cowl?	No 🔻				
270800923	Counting rules	ISO (Air or Dust)				
270800923-0010	Grid storage location	2708-EMR-49, E				
3	Archive filter(s) storage location	Westmont				
R. Pescador						
9/25/2008	F- factor					
0923	QA Type	Not QA				
	691.2 9/22/2008 270800923 270800923-0010 3 R. Pescador 9/25/2008	Analysis date Prep Pre				

EPA SAMPLE ID: LAB SAMPLE ID: 22 270800923-0010 Sample Type Count Rule 10312

Prep Direct

QA Type Not QA

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/1/2008 QA by: K. Lusher QA date: 10/2/2008

2248C66882.046C668452702987228888078080	<u> «Արտարանությանը անականության» բարաբարարարարի անականին անականին անականին անականին անականին անականի անականին ա</u>	STI
Target Sensitivity Reached	Complete current GO then ston	Little !

((a) - (a)						<u>umanungar nangan</u>					_					
Grid	Grid	Structure	No. of St	tructures	Dimens	ions (a)	Identification		Mineral C	lass (b)				s, blank :		Fract. GO
Ond	Opening	Туре	Primary	Total	Length	Width	- Identinodion	LA	_OA	С	NAM	Comments	Sketch	Photo	EDS	Chrys.
1	C9	ND								L	[
1	C7	ND			I	İ	No.		Ĺ							
1_ 1_	C5	ND														
1	C3	ND				i							· · · · · · · · · · · · · · · · · · ·			
1	C1	ND									·	3				i
1	E9	ND														
_ 1	E7	ND			[in				
1	E 5	ND					4		, , , , , , , , , , , , , , , , , , , ,							
1	E3	ND												· · · · · · · · · · · · · · · · · · ·		
1	E1	ND				i		L								
2	B9	ND					ha a lan an an an an an an an an an an			1			:			
_ 2	B7	ND														
2	B5_	ND				L					!					
2	В3	ND														
2	B1	ND										1				
2	D8	ND												1		
2	D6	ND										1				
2	D4	ND	L			in the second										
2	D2	ND														

Versio.

BNSF 2008 Libby Site Investigation v32h TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status

Ргер

QA Type

Analyzed

23

23 Not QA

Lab Sample Number Sample Type Category

EPA Sample Number

Air Field Direct 10312 **PARAMETERS**

Effective filter area Indirect factor 385.0 mm2 1.00E+00

Number of Grid Openings (amphibole) 19

Number of Grid Openings (chrysotile) 19 Grid opening area 0.0130

Grid opening area 0.0130 mm2
Volume (L) or Area (cm2) 698.4 L

Sensitivity (amphibole) 2.23E-03 s/cc Sensitivity (chrysotile) 2.23E-03 s/cc

Recording Rules:

Counting Rules

 Min. AR
 Min length (um)
 Min width (um)

 ≥ 3:1
 0.5
 none

270800923-0011

Stopping Rules:
 Target S
 Max GOs
 Max N

 0.0024
 50

COUNTS (based on countable structures only)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	0	0	0		
b	0	0	0		
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		

Check OK OK
Grand total 0 OK

CONCENTRATION (s/cc)

	_ \				
Bin	LA	OA	С	PCME(all)	PCME(asb)
а	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
b	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

FILE NAME: 23 270800923-0011 ISO 09-30-08 D.xls

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27		
Instrument	JEOL 100 CX (30)		
Voltage (KV)	100 kV		
Magnification	19,000 X		
Grid opening area (mm2)	0.0130		
Scale: 1L =	1.000		
Scale: 1D =	1.000		
Primary filter area (mm2)	385.0		
Secondary Filter Area (mm2)	360.0		
Category	Fleid		
Filter Status	Analyzed		

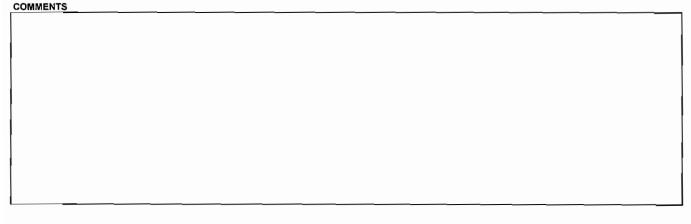
23		
Air	•	
698.4	4	
9/22/2008		
270800923		
27080092	3-0011	
3		
R. Pesc	ador	
9/25/20	800	
0923	3	
	9/22/20 270800 270800923 3 R. Pesco	

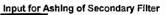
Analyzed by	R. Mahoney		
Analysis date	9/30/2008		
Prep	Direct	•	
loose material or debris in the	No	•	
Counting rules	ISO (Air or Dust)	•	
Grid storage location	2708-EMR-49), F	
Archive filter(s) storage location	Westmont		
F- factor			
QA Type	Not QA	•	

Minimum Width (um) F-factor Calculation: Indirect Prep Inputs Inputs for Serial Dilutions dilution Volume applied to secondary filter (mL) or used for serial dilution

≥ 3:1 Minimum Aspect Ratio Target Sensitivity 0.00240 GOs required to reach 18 Minimum Length (um) target sensitivity Maximum # of GOs 50 Maximum # of Structure 18 Estimated # of GOs Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsate volume (mL) Volume applied to secondary filter (mL) or used for serial Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial Third resuspension volume (mL)

Stopping Rules:





Fraction of secondary filter used for ashing

F-factor

Recording Rules:

Grid opening traverse direction:

٧

EPA SAMPLE ID: LAB SAMPLE ID: 23 270800923-0071 Sample Type Count Rule 403(2) Prep Direct QA

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/1/2008 QA by: K. Lusher QA date: 10/2/2008

A TERROR OF THE PROPERTY OF TH	[4073][1937][4][4][4][4][4][4][4][4][4][4][4][4][4]	
SECTION OF STREET SECTION AND ADDRESS OF STREET	ty Reached-Complete c	
mardet Sensitivi	tv Reachen-Combiete c	

larget	Target Sensitivity Reached-Complete current GO then stop.															
Grid	Grid	Structure	No. of S	tructures	Dimens	ions (a)	Identification		Mineral C	lass (b)			1 = ye	s, blank :	= กо	Fract. GO
Gild	Opening	Туре	Primary	Total	Length	Width	identinoation	LA	OA	С	NAM	Comments	Sketch	Photo	EDS	Chrys.
1	G10	ND							4							
1	G8	ND							Ĺ					: ::::::::::::::::::::::::::::::::::::		
1	G6	ND .														
1	G4	ND			L											
1	G2	ND			Ī.,i											
1	H9	ND	1			Ĺ				lane anne						
_ 1	H7_	ND									in the same date.	A comment and the second of th				
1	H5	ND														
1	H3	ND														
1	H1	ND														
2	H1	ND														
2	Н3	ND														
_ 2	H5	ND														
2	H7	ND														
2	H9	ND														L
2	B1	ND									Ĺ					
2	B3	ND														
2	B5	ND														
_ 2	B7	ND														

Versio

BNSF 2008 Libby Site Investigation v32h TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status

Analyzed

270800923-0012

Min length (um)

0.5

EPA Sample Number 24 QA Type Not QA

Lab Sample Number Sample Type Category

Air Field Direct

10312

Prep Counting Rules

Recording

Rules:

PARAMETERS

Stopping

Rules:

385.0 mm2 Effective filter area Indirect factor 1.00E+00 Number of Grid Openings (amphibole) 20 20

Number of Grid Openings (chrysotile) Grid opening area

Volume (L) or Area (cm2) Sensitivity (amphibole) Sensitivity (chrysotile)

705.6 L 2.10E-03 s/cc 2.10E-03 s/cc

0.0130 mm2

Min width (um)

none

Target S Max GOs Max N 0.0024 50

COUNTS (based on countable structures only)

Min. AR

≥ 3:1

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	0	0	0		
b	0	0	0		
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		

Check OK OK Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA OA	C	PCME(all)	PCME(asb)
a	<dl< th=""><th><dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<></th></dl<>	<dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<>	<dl< th=""><th></th><th></th></dl<>		
b	<dl< th=""><th><dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<></th></dl<>	<dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<>	<dl< th=""><th></th><th></th></dl<>		
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< th=""><th><dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<></th></dl<>	<dl< th=""><th><dl< th=""><th></th><th></th></dl<></th></dl<>	<dl< th=""><th></th><th></th></dl<>		
Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio	
LA = Libby-type amphibole	a			<5	
OA = Other amphibole	b	<.5		>= 5	
C = Chrysotile	С		>.5	>= 5	
	d	>=.5 to < 5	<=.5	>= 5	
	е	5 to 10	<=.5	>= 5	
	f	>10	<=.5	>= 5	

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

24_270800923-0012 ISO 09-30-08 D.xls

10/2/2008, 9:24 AM

FILE NAME: 24 270800923-0012 ISO 09-30-08 D.ds

FILE TYPE: Original

Recording Rules:

Stopping Rules:

			TTO PP MIS THE COL					
:	≥ 3:1	Minimum Aspect Ratio		Target Sensitivity				
l	0.50	Minimum Length (um)	-, 18⊟	GOs required to reach target sensitivity				
l	none	Minimum Width (um)		Maximum # of GOs				
			50	Maximum # of Structure				
			- 1.	1				

18 Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

٧

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	EPA Sample Number:
Instrument	JEOL 100 CX (30)	Sample Type
Voltage (KV)	100 KV	(cm2), or dustfall conteiner (cm2)
Magnification	19,000 X	Date received by lab
Grid opening area (mm2)	0.0130	Lab Job Number:
Scale: 1L =	1.000	Lab Sample Number:
Scale: 1D =	1.000	Number of grids prepare
Primary filter area (mm2)	365.0	Prepared by
Secondary Filter Area (mm2)	360,0	Preparation date
Category	Field	EPA COC Number
Filter Status	Analyzed	

EPA Sample Number:	24			
Sample Type	Alr	•		
Air volume (L), dust sample area (cm2), or dustfall conteiner area (cm2)	705.6			
Date received by lab	9/22/2008			
Lab Job Number:	270800923			
Lab Sample Number:	270800923-001			
Number of grids prepared	3			
Prepared by	R. Pescador			
Preparation date	9/25/2008			
EPA COC Number	0923			

Analyzed by	R. Mahoney
Analysis date	9/30/2008
Prep	Direct
loose material or debris in the	No 🔻
Counting rules	ISO (Air or Dust)
Grid storage location	2708-EMR-49, F
Archive filter(s) storage location	Westmont
F- factor	
QА Туре	Not QA

EPA SAMPLE ID: LAB SAMPLE ID: 24 270800923-0012 Sample Type Air Air Count Rule 10312

Prep Direct QA Type Not QA

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/1/2008 QA by: K. Lusher QA date: 10/2/2008

Reached-Complete current GO.	

.,		_			_											
Grid	Grid	Structure		tructures		sions (a)	Identification		Mineral C	<u> lass (b)</u>	_			s, blank :		Fract. GC
	Opening	Туре	Primary	Total	Length	Width		LA_	OA	<u> </u>	NAM	Comments	Sketch	Photo	EDS	Chrys.
1	C9	ND									I					
1	C7	ND					b									
1	C5	ND									[2012, 12.		
1	C3	ND	: L									,				
1	C1	ND												7 72 1 72 4		
1	G9	ND												F		
1	G7	ND								12.00		i di vi di sun di salarana di ili. N	immer. Sind disi	1		
1	G5	ND						[:
1	G3	ND														
1_	G1	ND .			ļ.,			L					::	2.750		11
2	12	ND									,, ,,,					
2	14	ND	in the same of the													
2	16	ND												h. r. r. r. i.i.		;
2	18	ND												2		
2	110	ND .								1	Ţ					
2	G2	ND		i							i.					
2	G4	ND	l:	2			L							2		
2	G6	ND			1	· · · · · · · · · · · · · · · · · · ·								:		771 11 11 11 11 11 11
2	G8	ND								3 -						
2	G10	ND										The state of the s				

50

BNSF 2008 Libby Site Investigation v32h TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

PARAMETERS

Rules:

Status **EPA Sample Number** QA Type

Analyzed 31 Not QA

270800923-0013

Lab Sample Number Sample Type Air Category Field Prep Direct Counting Rules 10312 Effective filter area 385.0 mm2 Indirect factor 1.00E+00 Number of Grid Openings (amphibole) 15 Number of Grid Openings (chrysotile) 15 0.0130 mm2 Grid opening area Volume (L) or Area (cm2) 974.4 L Sensitivity (amphibole) 2.03E-03 s/cc

Sensitivity (chrysotile) 2.03E-03 s/cc Target S Max GOs Max N Stopping

0.0024

Recording Rules:

Min. AR Min length (um) Min width (um) ≥ 3:1 0.5 none

COUNTS (based on countable structures only)

	(
Bin	LA	OA	С	PCME(all)	PCME(asb)					
a	0	0	0							
ь	0	0	0	1						
С с	0	О	0							
ď	0	0	0							
е	0	0	0							
f	0	0	0							
Total	0	0	0	0	0					
<u> </u>										

Check OK ΟK OK Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
а	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
ь	<dl< td=""><td><dl< td=""><td><dl< td=""><td>ł</td><td>' </td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>ł</td><td>' </td></dl<></td></dl<>	<dl< td=""><td>ł</td><td>' </td></dl<>	ł	'
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td> </td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td> </td><td></td></dl<></td></dl<>	<dl< td=""><td> </td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

EII	E	MΛ	ME	

31_270800923-0013_ISO_09-30-08_D.xls

FILE TYPE: Original

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Recording Rules: ≥ 3:1 ▼ Minimum Aspect Ratio

Minimum Length (um)

Minimum Width (um)

Stopping Rules:

этор	Stopping Rules.							
0.00)240 3	Target Sensitivity GOs required to reach target sensitivity						
-4111		Maximum # of GOs						
5	0	Maximum # of Structure						

Estimated # of GOs

BNSF 2008 Libby Site Investigation v32h TEM Asbestos Structure Count

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100 kV
Magnification	19,000 X
Grid opening area (mm2)	0.0130
Scale: 1L =	1.000
Scale: 1D =	1.000
Primary filter area (mm2)	385.0
Secondary Filter Area (mm2)	360.0
Category	Fleid
Filter Status	Analyzed 🔻

EPA Sample Number:	31			
Sample Type	Air	•		
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	974.4			
Date received by lab	9/22/2008			
Lab Job Number:	270800923			
Lab Sample Number:	270800923	3-0013		
Number of grids prepared	3			
Prepared by	R. Pesc	ador		
Preparation date	9/25/20	800		
EPA COC Number	0923	3		

Analyzed by	R. Mahon	еу
Analysis date	9/30/200	8
Prep	Direct	•
l sample type = air, is there loose material or debris in the	No	•
Counting rules	ISO (Air or Dust)	•
Grid storage location	2708-EMR-4	9, G
Archive filter(s) storage location	Westmor	nt
F- factor	1,460 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	
QA Type	Not QA	•

F-factor Calculation:

0.50

none

Fraction of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

EPA SAMPLE ID: LAB SAMPLE ID:

31 ... 医以下 等点 "不是是能够 270800923-0013 Sample Type Count Rule Air 10312

Prep Direct QA Type Not QA

ERROR CHECK OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/1/2008

QAL QA c

by:	K. Lusher	 	_	_
	10/2/2008			
emdetabareas			_	

Grid	Grid	Structure	No. of S	tructures	Dimens	ions (a)	Identification		Mineral C	lass (b)			1 = ye	s, blank :	= no	Fract. GO
- Cita	Opening	Туре	Primary	Total	Length	Width	Identification	3	OA	С	NAM	Comments	Sketch	Photo	EDS	Chrys.
1	D10	ND														
1_	D8	ND				· · · · · · · · · · · · · · · · · · ·								port terrelin		
1_	D6	ND														
1	D4	ND														
1	19_	ND														
1	17	ND														
1_	<u>15</u>	ND							4.11.11.12							
1	13	ND														
1	<u>i1</u>	ND														10.11 12.11
2	H2_	ND				L i	<u></u>									1
2	H4	ND	Lings													
2	H6	ND														
2	H8	ND								:				5 - 12 - 12 - 12 - 12 - 12 - 12 - 12 - 1		, y
2	H10	ND												1		1 1111 1111
2	G9	ND														,

SAMPLE ID

Analyzed

PARAMETERS Effective filter area

385.0 mm2

Status **EPA Sample Number**

0 LB Indirect factor

1.00E+00

QA Type Lab Sample Number

Number of Grid Openings (amphibole) 10

Sample Type

270800923

Number of Grid Openings (chrysotile) 10

Category

Air Blank Direct Grid opening area

0.0130 mm2

Prep Counting Rules 10312

Volume (L) or Area (cm2) Sensitivity (amphibole) Sensitivity (chrysotile)

0 L Blank s/cc Blank s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
	10	50

COUNTS (based on countable structures only)

Bin	LA	OA		PCME(all)	PCME(asb)
а	0	0	0		
b	0	0	0		
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		

Grand total

OK 0

OK OK

CONCENTRATION (s/cc)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а					
b					
С					
d					
е					
f					
Total					<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

EPA SAMPLE ID: LAB SAMPLE ID: 270800923

Sample Type Count Rule Prep Direct
QA Type LB

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: QA by: K. Lusher QA date: 10/2/2008

Maximu		a Opening	s Keacne	d-Complet	ecurrent	50 then s	top.									
Grid	Grid	Structure	No. of S	tructures	Dimens	ions (a)	Identification		Mineral (Class (b)			1 = ye	s, blank	= no_	Fract. GO
Gild	Opening	Туре	Primary	Total	Length	Width	Identilication	LA_	OA	С	NAM	Comments	Sketch	Photo	EDS	Chrys.
1	D10	ND														
1	D8	ND			I					.i.						
1	D6	ND				L		ļ				\$				
_ 1	D4	ND								. 1	i			· · · · · · · · · · · · · · · · · · ·		
1	D2	ND		L												
2	12	ND														
2	4	ND		land dament or service												
2	16	ND		L		<u> </u>	2							1		
2	18	ND														
2	110	ND														

Laboratory name:

Instrument

Voltage (KV)

Magnification

Scale: 1L =

Scale: 1D =

Grid opening area (mm2)

Primary filter area (mm2)

Secondary Fifter Area (mm2)

FILE NAME: 270800923 ISO 09-30-08 DLB XIS

EPA Sample Number:

Date received by lab

Lab Sample Number:

Number of grids prepared

Lab Job Number:

Prepared by

Preparation date

EPA COC Number

Air volume (L), dust sample area

(cm2), or dustfall container area

Sample Type

EMSL27

JEOL 100 CX

(30)

100 kV

19,000 X

0.0130

1.000

1.000

385.0

360.0

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

270800923

270800923

2

R. Pescador

9/25/2008

0923

FILE TYPE: Original

Recording Rules: ≥ 3:1 🔻

0.50

none

Stopping Rules:

Minimum Aspect Ratio		
Minimum Length (um)	10	ŀ
Minimum Width (um)	10	ı

50

Target Sensitivity GOs required to reach target sensitivity Maximum # of GOs

Maximum # of Structure

10 Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Volume applied to secondary filter (mL) or used for serial

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

٧

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

Analyzed by

R. Mahoney Analysis date 9/30/2008

Prep Direct n sample type – air, is there

loose material or debris in the No cowl2

Counting rules ISO (Air or Dust)

Grid storage location 2708-EMR-49, G

Archive filter(s) storage location Westmont

F- factor QA Type Lab Blank \mathbf{v}

Category Blank ▾ Analyzed

Fifter Status

COMMENTS

Second resuspension volume (mL)

dilution

Input for Ashing of Secondary Filter

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structura

Type

ND

ND

ND

NO

ND

ND

ND

ND

ND

No. of Structures

Total

Primary

EPA Sample Number:	3
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1435.2
Date received by lab	9/52/08
Lab Job Number:	270800923
Lab Sample Number:	270800923-0001
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	9/25/08
EPA COC Number:	0923
Secondary filter pore size (um)	0.2
	<u>-</u>

Identification

9/30/08
D
No
ISO
2708-EMR-49, A
Westmont
Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right--->

Sketch

Recording Rules:						
Minimum Aspect Ratio (circ	le one);					
none ≥ 3:1	≥ 5:1					
Minimum Length (um):	0.5					
— Minimum Width (um):	None					

Stopping Rules:	_
Target Sensitivity:	0.0024
Max # of GOs:	9
Target # of Structures:	50

F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

Fraction of primary filter used for Indirect prep or eshing [For dust and dustfall, enter 1.0]
First resuspension volume or rinsate volume (mL)
Volume applied to secondery filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for eshing

LA = Libby-type amphibole

Grid

3

Grid Opening

G-4

6-6

116

G-3

G-5

G-7

09

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one):

H Horizontal

Vertical

Ara prepped grids acceptable for enalysis? (circle one)



If No, explain:

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening erea (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	_1
Primary filter area (mm2)	385
Secondary Filter Aree (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Туре

שע

ND

NO

Nn

NO

ND

NO ND

NΒ

NO

No. of Structures

Total

Primery

EPA Sample Number:	6
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container erea (cm2)	1425.6
Date received by lab	9/22/08
Lab Job Number:	270800923
Lab Sample Number:	270800923-0002
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	9/25/08
EPA COC Number:	0923
Secondary filter pore size (um)	0.2

Identification

Analyzed by	R. Mahoney
Analysis dete	9/30/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-49, A
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep. Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Skatch/ Comments

NAM

Enter data in appropriate cells provided to the right--->

Sketch

Recording Rules:	
Minimum Aspect Ratlo (circ	le one):
none ≥3:1	≥ 5:1
/linimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	9
Target # of Structures:	50

F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

	Fraction of primary filter used for indirect prep or asking [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsete volume (mL)
	Volume applied to secondary filter

Inputs for Serial Dilutions

mpats for C	1
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

Fraction of secondary filter used for

LA = Libby-type amphibole

Grid

Grid Opening

29

E7

E5

E3

81

GZ

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

OA

NAM = Non-asbestos material

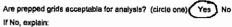
1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one): H Horizontal

V Verticet



~	 	

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.0(3
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Calegory (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Type

ND

NO

NO

ND

ND

ND

No. of Structures

Total

Primary

EPA Sample Number:	7
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1425.6
Date received by lab	9/22/08
Lab Job Number:	270800923
Lab Sample Number:	270800923-0003
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	9/25/08
EPA COC Number:	0923
Secondary filter pore size (um)	0.2

Identification

LA

Analyzed by	R. Mahoney
Analysis date	9/30/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ıso
Grid storege location	2708-EMR-49, B
Archive filter(s) storege location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right--->

Sketch

Minimum Aspect Ratio (circl	e one):
none 23:1	≥ 5:1
Minimum Length (um):	0.5
— Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	9
Target # of Structures:	50

F-factor Calculation:

Indirect Prep Inputs

	Frection of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filler used for

LA = Libby-type amphibole

Grid

Grid Opening

H5

H1

09 **p7**

05

 $\rho 3$

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

ED\$

Grid opening traverse direction (circle one): Horizontal

Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No If No, explain:

Fract.

GO

Chrys.



Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Fleid, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Type

00 ND

<u>מא</u> טע

ND

ND

ND

ND

ND

NO

Grid Opening

G2

Grid

No. of Structures

Total

Primary

EPA Sample Number:	8
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1420.8
Date received by lab	9# -1 /08
Lab Job Number:	270800923
Lab Sample Number:	270800923-0004
Number of grids prepared	. 3
Prepared by	R. Pescador
Preparation date	9/25/08
EPA COC Number:	0923
Secondary filter pore size (um)	0,2

Identification

LA

Analyzed by	R. Mahoney
Analysis date	9/30/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-49, B
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconcilitation, Leb Blank, Interfeb)	Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right--->

Sketch

Recording Rules:	
Minimum Aspect Ratio (circle one):	
none ≥ 3:1	≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	9
Target # of Structures:	50

F-factor Calculation:

Fract.

GO

Chrys.

EDS

Indirect Prep Inputs

	Fraction of primary filter used for Indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsale volume (mL)
	Volume applied to secondary filler

Inputs for Serial Dilutions

	Second resuspension volume (ml.)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (ml.)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

Fraction of secondary filter used for eshing

LA = Libby-type amphibole

H 5

H3

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos materiel

1 = yes, blank = no

Photo

Grid opening traverse direction (circle one):

H Horizontal

\bigcirc	ertical
------------	---------

Are prepped grids acceptable for analysis? (circle one)



Νo

Laboratory name:	EMSL27
instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	· 1
Primary filter area (mm2)	385
Secondary Fifter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

EPA Sample Number:	13
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1322.4
Date received by lab	9/11/08
Lab Job Number:	270800923
Lab Sample Number.	270800923-0005
Number of grids prepared	. 3
Prepared by	R. Pescador
Preparation date	9/25/08
EPA COC Number:	0923
Secondary filter pore size (um)	0.2

R. Mahoney
9/30/08
D
No
ISO
2708-EMR-49, C
Westmont
Not QA

F-Factor Calculation (Indirect Preps Only): Enter data in eppropriate cells provided to the right--->

Recording Rules: Minimum Aspect Ratio (circle one); none **(≥**3:1) ≥ 5:1 Minimum Length (um): 0.5 Minimum Width (um): None

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	10
Target # of Structures:	50

F-factor Calculation:

Indirect Pre	p Inputs
	Fraction of primary filter used for indirect prep or ashing
	[For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

Grid Grid Openin		Structura	Al deluia		of Structures Dimensions		Identification	Mineral Class (see below)			Shatahi Caranasia	1 = yes, blank = no			Fract,	
	One opening	Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Sketch/ Comments -	Sketch	Photo	EDS	GO Chrys.
	09	ND										-				
	07	NA														
	p5	NO		_												
	03	رد										•				
<u> </u>	b/	νp														
2	42	هک														
	1+4	מא														
	176	Np														
	48	פע														
4	HID	ND														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibale

C = Chrysotile

NAM = Non-asbestos material

Grid opening travarse direction (circle one): Horizontal

V Vartical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:



Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0,8

Structure

Type

ND ND

ND

N1)

ND

NO

ND

ND

NO

NO

Grid Opening

42

H10

42

116

No. of Structures

Total

Primary

EPA Sample Number:	14
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1320
Date received by lab	9/12/08
Lab Job Number:	270800923
Lab Sample Number:	270800923-0006
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	9/25/08
EPA COC Number:	0923
Secondary filter pore size (um)	0.2

Identification

LA

R. Mahoney
9/30/08
D
No
ISO
2708-EMR-49, C
Westmont
Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

NAM

Enter data in appropriate cells provided to the right--->

Sketch

1 = yes, blank = no

Photo

NAM = Non-asbestos material

EDS

Recording Rules:	
Minimum Aspect Ratio (cir	cle one);
none ≥ 3:1	≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	-
Target Sensitivity:	0.0024
Max # of GOs:	10
Target # of Structures:	50

F-factor Calculation:

Indirect Prep Inputs

 , p 4.0
Frection of primery filter used for Indirect prep or ashing [For dust and dustfall, enter 1.0]
First resuspension volume or rinsati volume (mL)
Volume applied to secondary filter (mL) or used for senal dilution

Inputs for Serial Dilutions

III Palo Iot C	
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for seriel dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for

Fract.

GO

Chrys.

LA = Libby-type amphibole

Grid

2

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

С

OA

Grid opening traverse direction (circle one):

H Horizontai

Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No If No, explain:



Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1_
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Cetegory (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

No. of Structures

Primary

Total

EPA Sample Number:	15
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1322.4
Date received by lab	9/22/08
Lab Job Number:	270800923
Lab Sample Number.	270800923-0007
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	9/25/08
EPA COC Number:	0923
Secondary fitter pore size (um)	0.2

Identification

LA

9/30/08 D
No
ISO
2708-EMR-49, D
Westmont
Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right--->

Sketch

Minimum Aspect Retio (circle	e one):
none ≥ 3:1	≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Terget Sensitivity:	0.0024
Max # of GOs:	10
Target # of Structures:	50

F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

	Frection of primary filter used for Indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsete volume (mL)
	Volume applied to secondary filter

Inputs for Serial Dilutions

	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
_	Volume applied to secondary filter (mL)

Input for Ashing of Secondary Fitter Fraction of secondary filter used for

	CG	Nn							
	C8	NB							
4	CIO	NB							
ı	B2	Nn							
Li_	B4	ND							
	BG							_	
	B8	ND							
1	BID	מנת					_		

LA = Libby-type amphibole

Grid

Grid Opening

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one):

H Horizontal V Vertical

Are prepped grids acceptable for analysis? (circle one) If No, explain:



Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.0/3
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	36 b
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Туре

NO

ND

ND

ND

No. of Structures

Total

Primery

EPA Sample Number:	16
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	1341.6
Date received by lab	9#1/08
Lab Job Number:	270800923
Leb Sample Number:	270800923-0008
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	9/25/08
EPA COC Number:	0923
Secondary filter pore size (um)	0.2

Identification

LA

Analyzed by	R. Mahoney
Analysis date	9/30/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
If sample type = air, is there loose material or debris in the cowf? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-49, D
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only): Enter date in appropriate cells provided to the right---->

Sketch/ Comments

Recording Rules: Minimum Aspect Ratio (circle one): none ≥ 5:1 Minimum Length (um); 0.5 Minimum Width (um): None

Stopping Rules:		-
Target Sensitivity:	0.0024	
Max # of GOs:	10	_
Target # of Structures:	50	

F-factor Calculation:

Fract,

GO

Chrys.

Indirect Prep Inputs

Frection of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0] First resuspension volume or rinsets volume (mL) Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL) Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

LA = Libby-type amphibole

Grid

2

Grid Opening

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Sketch

Grid opening traverse direction (circle one): H Horizontal

(7)

Vertical

Are propped grids acceptable for analysis? (circle one) If No, explain:



Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary fitter pore size (um)	0.8

Structure

Туре

Nn

M

ND

Grid Opening

09

07 D5

D3

DI

Grid

No. of Structures

Total

Primary

EPA Sample Number:	20
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust erea (cm2), or dustfall container area (cm2)	698.4
Date received by lab	9/17/08
Lab Job Number:	270800923
Lab Sample Number:	270800923-0009
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	9/25/08
EPA COC Number:	0923
Secondary filter pore size (um)	0.2

Identification

LA

R. Mahoney
9/30/08
No
ISO
2708-EMR-49, E
Westmont
Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right--->

Sketch

1 = yes, blank = no

Photo

EDS

Recording Rules;								
Minimum Aspect Ratio (circle one):								
none ≥3:1	≥ 5:1							
Minimum Length (um):	0.5							
Minimum Width (um):	None							

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	18
Target # of Structures:	50

F-factor Calculation:

Frect.

GO

Chrys.

Indirect Pren Inputs

man cott re	ip ilipula
	Fraction of primary filter used for
	indirect prep or ashing
	[For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mL)
	Volume epplied to secondary filter

Inputs for Serial Dilutions

Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL)

Volume applied to secondary filter

Input for Ashing of Secondary Filter Fraction of secondary filter used for

ashing

(mL)

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

Grid opening traverse direction (circle one): Horizontal

V Vertical

Are prepped gride acceptable for enalysis? (circle one) Yes No If No, explain;



 LAB NAME
 EMSL27

 LAB SAMPLE NO.
 270800923-0009

EPA SAMPLE NO. 20
SAMPLE TYPE A

QA TYPE Not QA LAB JOB NUMBER <u>270800923</u>

GRID STORAGE LOC. 2708-EMR-49, E

LAB SAMPLE NO.		2100003	23-0009_		SAMPLE					Not	<u>un</u>	j Oran	JOIONAC	10RAGE LOC. 2708-EMR-49, E			
Grid	Grid	Structure						Identification Mineral Class						1 = ye	Fract. GO		
	Opening	Type	Primary	Total	Length	Width		LA	OA_	С_	NAM	Sketch/Comments	Sketch	Photo	EDS	Chrys.	
2	I2	Qu.											_				
	I4	תנע									_						
	I6	وبم															
	I8	رم															
	I10	Nŋ															
	G4	~0															
	66	Nn															
	6-8			_													
		ND		_			_					_	_		_		
	G-10	ND	-	-												-	
													_		_		
		_	_				Rem	-					-			_	
		_	_			_	R/Cm 2	30	as				 				
		_					_						-		_	-	
	_	_	-														

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Grid Opening

No. of Structures

EPA Sample Number:	22
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	691.2
Date received by lab	9/ 12 /08
Lab Job Number:	270800923
Lab Sample Number:	270800923-0010
Number of grids prepared	3
Prepared by	R. Pescador
Preparation date	9/25/08
EPA COC Number:	0923
Secondery filter pore size (um)	0.2

Identification

Analyzed by	D 14
	R. Mahoney
Analysis date	9/30/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
If sample type = air, is there loose material or debris in the cowt? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-49, E
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interfeb)	Not QA
, , , , , , , , , , , , , , , , , , , ,	

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right--->

Recording Rules:							
Minimum Aspect Ratio (circl	e one):						
none ≥3:1	≥ 5:1						
Minimum Length (um):	0.5						
Minimum Width (um):	None						
_							

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	18
Target # of Structures:	50

F-factor Calculation:

Fract.

Indirect Prep Inputs

	-p inpato
	Frection of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsele volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for serial dilution Third resuspension volume (mL)

Volume applied to secondary filter

(mL)

Input for Ashing of Secondary Filter

Fraction of secondary filter used for

NAM = Non-asbestos material

1 = yes, blank = no

		Туре	Primary	Total	Length	Width		LA	OA	С	NAM		Sketch	Photo	EDS	Chrys.
	<u> </u>	an														_
	<u>c</u> 7	NO														
	c5	ND										_				
	C3	No														
	C/	Nn														
	£9	NO														
	£7	NO										_	,			
	ε5_	NO					_					_				
	£3	NO										_				
₩.	٤/	an														

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

Dimensions

C = Chrysotile

Mineral Class (see below)

Grid opening traverse direction (circle one):

Horizontal Verticel

Are prepped grids acceptable for analysis? (circle one) Yes If No, explain:



LAB NAME EMSL27

LAB SAMPLE NO. 270800923-0010

EPA SAMPLE NO. 22

SAMPLE TYPE A

QA TYPE Not QA LAB JOB NUMBER 270800923

GRID STORAGE LOC. 2708-EMR-49, E

LAB SAMPLE NO. 270800923-0010		23-0010		SAMPLE	TYPE	<u>A</u>	A Not QA GRID					STORAGE LOC. <u>2708-EMR-49, E</u>				
Grid	Grid Opening	ening Type				nsions	Identification			Il Class				es, blank		Fract. GO Chrys.
	<u> </u>		Primary	Total	Length	Width_		LA	<u>OA</u>	<u> </u>	NAM	Sketch/Comments	Sketch	Photo	EDS	Ciliys.
2.	ß9_	מא	_		<u>.</u>					٠_						
	B7_	αN			_		_		_				_			
	B5	NB			_					_	_		_	_		
	B3	ND				_										
	BI	NP_									_					
	p8	_ מא														
	<i>p</i> 6	~0	_	_					_						_	_
	ρ4					_	_						_			
	02	~_α	_			_	<u> </u>							_		
	D.Z.	~p		. <u> </u>	-											
									_	_						
							Pro									
							Ricm 9	/30/c	æ							
									_							
	_	_	_	_			_				_	_				
									<u> </u>	<u> </u>						

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	36 D
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0,8

Structure

Type

No. of Structures

Total

Primary

EPA Sample Number:	
Sample Type (A=Air, D=Dust, DF = Dustfall):	23
Air volume (L), dust area (cm2), or dustfall container area (cm2)	698.4
Date raceived by lab	9/22/08
Lab Job Number:	270800923
Lab Sample Number:	270800923-0011
Number of grids prepared	3_
Prepared by	R. Pescador
Preparation date	9/25/08
EPA COC Number:	0923
Secondary filter pore size (um)	0.2

Identification

LA

Analyzed by	
	R. Mahoney
Analysis date	9/30/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
If sample type = air, is there loose material or debris in the cowf? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-49, F
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interiab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

NAM

Enter data in appropriate cells provided to the right--->

1 = yes, blank = no

Photo

NAM = Non-asbestos material

EDS

Sketch

le one):
≥ 5:1
0.5
None

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	18
Target # of Structures:	50

F-factor Calculation:

Fract.

GO

Chrys.

Indirect Pro	ep Inputs
	Frection of primary fitter used for
	Indirect prep or eshing [For dust end dustfall, enter 1,0]
	First resuspension volume or rinse volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary fitter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter

Input for Ashing of Secondary Filter

Fraction of secondary filter used for

LA = Libby-type amphibole

Grid

Grid Opening

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

QΑ

Grid opening traverse direction (circle one): Horizontef



Vertical

Are prepped grids ecceptable for analysis? (circle one) Yes



_		
	١.	
36	١	N
80	,	

If No, explain:

 LAB NAME
 EMSL27

 LAB SAMPLE NO.
 270800923-0011

EPA SAMPLE NO. 23
SAMPLE TYPE A

QA TYPE Not QA LAB JOB NUMBER <u>270800923</u>

GRID STORAGE LOC. <u>2708-EMR-49</u>, F

	Grid	Structure	No. of Str	uctures	Dime	nsions	Identification Mineral Cla		Mineral Class			1 = yes, blank = no			Fract.	
Grid	Opening	Туре	Primary	Total	Length	Width	Identification	LA	OA	C	NAM	Sketch/Comments	Sketch	1 7	EDS	GO Chrys.
2	H /	ND														
	H 3	~9														
	H5	Nŋ														
	H7	NJ							_							
	<i>H</i> 9	ND														
	B /	Nŋ														
	ß 3_	Nŋ														
	B5_	NO							_							
	87	NO														
						Ron										
_							1/30/1	2£								
				_												
									_							

Laboratory name:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening erea (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Туре

No. of Structures

Total

Primary

EPA Sample Number:	24
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	705.6
Date received by lab	9/11/08
Lab Job Number:	270800923
Lab Sample Number:	270800923-0012
Number of grids prepared	3
Prepared by	R. Pescador
Preparetion date	9/25/08
EPA COC Number:	0923
Secondary filter pore size (um)	0.2

Identification

LA

R. Mahoney
9/30/08
D
No
ISO
2708-EMR-49, F
Westmont
Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

NAM

Enter data in appropriate cells provided to the right---->

e one):
≥ 5:1
0.5
None

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	18
Target # of Structures:	50

F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

	Fraction of primary filter used for
	indirect prep or ashing
	[For dust and dustfall, enter 1.0]
	First resuspension volume or rinsal volume (mL)
	Volume applied to secondary filter

Inputs for Serial Dilutions

Second resuspension volume (mL) Volume applied to secondary filter (mL) or used for seriel dilution Third resuspension volume (mL)

Volume applied to secondary filter

Input for Ashing of Secondary Filter

Fraction of secondary filter used for

LA = Libby-type amphibole

Grid

Grid Opening

OA = Other (non-Libby type) amphibole

Dimensions

Langth

Width

C = Chrysotile

Mineral Class (see below)

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Skatch

(V) Vertical

Are prepped grids acceptable for analysis?	(circle one)
If No, explain:	`

103	י(40	

н	Horizontal
∕ ⋒	N

Grid opening traverse direction (circle one);

 LAB NAME
 EMSL27
 EPA SAMPLE NO.
 24
 QA TYPE

 LAB SAMPLE NO.
 270800923-0012
 SAMPLE TYPE
 A
 Not QA

LAB JOB NUMBER <u>270800923</u>

GRID STORAGE LOC. 2708-EMR-49, F

			20 00 12							1401			- OTOTAL		2.00 2.	
Grid	Grid	Structure	No. of Str	uctures_	Dime	Dimensions Identification		dentification Mineral Class			1 = yes, blank = no			Fract. GO		
	Opening	Туре	Primary	Total	Length	Width		LA	OA	С	NAM	Sketch/Comments	Sketch	Photo	EDS_	Chrys.
2	I2	Np			_		,			_		<u>. </u>			:	_
	IY	מ,ע						_	_							
	<i>I</i> 6	NB_		_					_							
	<i>I8</i>	مرر														
	I10	NO														
	62	ND														
	64_	NO														
	G-6	~0														_
	a-8_	~n_	_					_	_							
1	6-10	ND	_							,		_				
							_									
		_					Pra				_		_			
	_	_	_				Plan	130	108							
	_	_					_									

Laboratory neme:	EMSL27
Instrument	JEOL 100 CX (30)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1_
Scale: 1D =	. 1
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Type

ND

ND

ND

No. of Structures

Total

Primary

EPA Sample Number: Sample Type (A=Air, D=Dust, DF = Dustfall):	31
DF = Dustfall):	
Air volume (L) dust area (cm2)	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	974.4
Date received by lab	9/11/08
Lab Job Number:	270800923
Lab Sample Number:	270800923-0013
Number of grids prepared	. 3
Prepared by	R. Pescador
Preparation date	9/25/08
EPA COC Number:	0923
Secondary filter pore size (um)	0.2

Identification

LA

Analyzed by	R. Mahoney
Analysis date	9/30/08
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	
If sample type = air, is there loose material or debris in the cowf? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-49, G
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconclietion, Leb Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right--->

Sketch

Recording Rules:	
Minimum Aspect Ratio (circ	le one):
none ≥3:1	≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	14
Target # of Structures:	50

F-factor Calculation:

Frect.

GO

Chrys.

EDS

Indirect Prep Inputs

	Fraction of primary filter used for Indirect prep or eshing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsate volume (mŁ)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial difution

Third resuspension volume (mL)

Volume applied to secondary filter

Input for Ashing of Secondary Filter

Frection of secondary filter used for

LA = Libby-type amphibole

Grid

Grid Opening

DID

BB

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

Grid opening traverse direction (circle one): Horizontal

4	Horiza
り	Vertical

Are prepped grids acceptable for enalysis? (circle one), If No, explain:

LAB NAME EMSL27 LAB SAMPLE NO. 270800923-0013 EPA SAMPLE NO. 31 SAMPLE TYPE Α

QA TYPE Not QA

LAB JOB NUMBER GRID STORAGE LOC. 2708-EMR-49. G

270800923

		2700003			JAWIPLE						I QA	-	STORAC			
Grid	Grid Opening	Structure Type	No. of Str	ucture <u>s</u>	Dime	nsions_	Identification		Minera	l Class	_		1 = <u>y</u> e	es, blank	= no	Frac GO
	Opening		Primary	Total_	Length	Width	<u> </u>	LA_	OA_	С	NAM	Sketch/Comments	Sketch	Photo	EDS	Chry
2_	#4	NB			_									, .		
-	46	ND							_		<u> </u>					
\perp	H8	NO	_		_				_		_					
-	H10	ND		_					_	_						
<u> </u>	69	9N		_							_				<u>_</u>	
								_								
	_				_	_	_								_	
_	_	_				R	EN Z	_			<u> </u>					
							2	30/0	כנ		<u> </u>					
			_				_				_					
_				_									_			
	_															
	_		_													
																_

LB)

BNSF 2008 Libby Site Investigation v32h TEM Asbestos Structure Count

EMSL27
JEOL 100 CX (30)
100
19,000 X
0.013
1_
1
385
36.0
Blank
0.8

Structure

Type

Nŋ Nŋ

νņ ν0

ND

MP

ورس

NO

ND

NO

Grid Opening

DIO

08

bч

p 2

I 2

I O

Grid

No. of Structures

Total

Primary

EPA Sample Number:	
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust erea (cm2), or dustfail container area (cm2)	0_
Date received by lab	042/08
Lab Job Number:	270800923
Lab Sample Number:	270800923
Number of grids prepared	2
Prepared by	R. Pescador
Preparation date	9/25/08
EPA COC Number:	0923
Secondary filter pore size (um)	0.2

Identification

LA

	Analyzed by	R. Mahoney
	Analysis date	9/30/08
	Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
P	If sample type = air, is there loose meterial or debris in the cowl? (Yes, No)	No
	Counting rules (ISO, AHERA, ASTM)	ISO
	Grid storege location	2708-EMR-49, G
	Archive filter(s) storage location	Westmont
	QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Leb Blank, Interieb)	Lab Blank

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right----> .

Sketch

пе):	
4	
≥ 5:1	
0.5	
None	

Stopping Rules:	
Target Sensitivity:	
Max # of GOs:	10
Target # of Structures:	50

F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust end dustfall, enter 1.0]
First resuspension volume or rinsete volume (mL)
Volume epplied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter

Frection of secondery filter used for eshing

LA = Libby-type emphibole

OA = Other (non-Libby type) amphibole

Dimensions

Length

Width

C = Chrysotile

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one):
H Horizontal
V Vertical

Are prepped grids acceptable for analysis?	(circle one)
If No. avalain:	



No

EMSL Analytical, Inc.

Asbestos

CHAIN OF CUSTODY Revised January 1, 2000

ORDER: 270800923 ITO#

EMSL Rep:										
Your Company Name: EMSL Analytical, Inc.			nc.	Bill t	o:	EMI	EMR. Inc			
Street:		107 4th Street Wes	t	Stree	t:	Cot	(wney			
Box #:						-				
City/State:		Libby, MT	Zip: 59923	City/:	State:	Ouln	n mn.	Zip:		
Phone Results to: Name: Scott Carney				Fax F	Fax Results to: Name:					
Telephone #:		<u> </u>		—— Fax#	! <u>:</u>					
Project Name/Numl	ber:			— Purci	hase Order #:					
		MATRIX				TUR	NAROUND			
Air Air	□ Soil		☐ Micro-Vac	□ 3 hr	's	☐ 6 Hours	☐ Same Day or 12 Hours*	24 Hours (1 day)		
□ Bulk	☐ Drink	ing Water		□ 48 F	lours ays)	72 Hours (3 days)	□ 96 Hours (4 days)	120 Hours (5 Days)		
☐ Wipe	□ Waste	water			+ hours (6-10		(4 64/3)	(S Days)		
TEM AIR, 3 hours, 6 hou form for this service.	urs, Please call		is a premium charge for 3-hour ta rice Quote				ampies. You will be asked	to sign an authorization	÷	
PCM - Air			TEM Air				TEM Water			
NIOSH 7400(A	•	lugust 1994	☐ AHERA 40 CFR, Part 763 Subpart E ☐ NIOSH 7402 Issue 2			Į.	☐ EPA 100.1 ☐ EPA 100.2			
OSHA w/ TWA			EPA Level II				☐ NYS 198.2			
_ Omer.			£ 250 10)		N-P		1110 170.2			
PLM - Bulk			TEM Bulk				TEM Microvac/Wi	ipe		
EPA 600/R-93/			Drop Mount (Qualitative)				ASTM D 5755-95 quantitative			
EPA Point Cour			☐ Chatfield SOP – 1988-02 ☐ TEM NOB (Gravimetric) NYS 198.4				☐ Wipe Qualitative			
NYS Stratified I			☐ TEM NOB (•	,		XRD			
☐ NIOSH 9002	vimetric) 14 i	3 170.1	L CMSL State	Jaiu Audilio	,,,		Asbestos			
☐ EMSL Standard	d Addition		PLM Soil				Silica NIOSH 7:	500		
SEM Air or Bulk	Addition		EPA Protoco	ol Oualitativ	e		Li Billoa NIOSII 7.	300		
☐ Qualitative			☐ EPA Protoco	-			OTHER			
Quantitative			☐ EMSL MSD	•						
Client Sample # (s)						Tot	al Samples #:			
Relinquished:		and the same of th			Date:	9/22/0	g Time:	15:41		
Received:		R.K.M.	horany En	SC	Date:	9/22/08	Time:	1541		
Relinguisted:	દ્ય	List I de	ett-feruder &	MSL	Date:	12/4/08	Time:	1542		
Received:	\$	inda Rain	mourabi E	MSC	Docte:	12/4/08	Time:	9:19 40		

Asbestos

ORDER ID#: Z76800927



CHAIN OF CUSTODY Revised January 1, 2000

3 9/17/08 05/HA mile marker 13/2 6 7	1435.2	~
7	1425.6	·
7		·
	1425.6	
8 V	1420.8	
13 9/19/08 mile Morker 1331.5 -	1322,4	~
14	1320	v
15	13224	
16	1741.6	
20 9/19/08 mile Marke 1731	698.4	J
22	691.2	v
23	698.4	
24 /	7.05.6	<u> </u>
31 922 Mile Marker 1329.5	974.4	v

25 LBS

1 OF 1

JOMAY WYATT-PESCADOR 406-293-9066 EMSL ANALYTICAL, INC. 107 WEST 4TH STREET LIBBY MT 59923

SHIP TO:

CHARLES LACERRA 856-858-4800 1253 EMSL ANALYTICAL, INC. 107 HADDON AVENUE

WESTMONT NJ 08108-2711



NJ 081 9-06

UPS GROUND

TRACKING #: 1Z Y84 048 03 9398 9125



BILLING: P/P



DEC 19 2008 9:06 Am



EMSL Analytical, Inc.

107 Haddon Avenue

Westmont, New Jersey 08108

Phone: (856) 858-4800 Fax: (856) 858-9551

LETTER OF TRANSMITTAL

To:	Scott Carney		Date:	January 2	26,2009
	EMR, Inc.		From:	Charles 1	E. LaCerra
	11 East Superior Street		Re:	Libby, M	IT BNSF Work
	Suite 260			Mobile I	ab Analytical Reports
	Duluth, MN 55802		•	See Belo	w
	Phone: 763-277-5200	_			
We are ser	nding you: × Atta	ched	1	Under sep	parate cover via
	Solicitation	Copy	of Letter		☐ Invoice #'s See Below
	Subcontract	As no	oted		Other
	Laboratory Samples	Analy	tical Repor	ts	
These are	transmitted as indicated	l below:			
	ExecuteOriginal(s)	☐ Revie	w & Com	ment	☐ For Approval
	ReturnOrginal(s)	As Re	equested		Respond as instructed
\boxtimes	For Your Information/File				Other
Remarks:					
Enclosed p	lease find one (1) copy of	f the follow	ing mobil	e lab analy	ytical reports for analysis for
your review	wand use for the above re	ferenced p	roject:		
270800931	270800943				
DI CI	6 4 4 10				1122 11 6 2
Please feel	free to contact me with a	ny questior	is or if you	ı require a	dditional information
~				ca 1	1 10
Copy to: $_$			_ Signed:	: <u>Uhanl</u>	us dallua

INTERNAL CHAIN OF CUSTODY

9/23/2008 3:03:41 PM

Order ID: 270800931

Attn:	Scott Carney EMR, Inc.			Customer ID: Customer PO:	EMRI78		
	11 East Superior Street Suite 260 Duluth, MN 55802			Received:	09/23/08 1:45 PM		
Fax:	(218) 625-2337	Phone: (218) 62	25-2332	EMSL Order:	270800931		
Project:	Samples collected 9/23/2	2008		EMSL Proj ID: Cust COC ID	BNSF Libby, MT 2008		
Invoice t	to Burlington N. Santa	Fe/BNSF Rlwy	(BURL54), 250	0 Lou Menk	Drive, Fort Worth, TX	7 6131	
<u>Test:</u>	TEM ISO 10312	<u>Matrix</u>	Air	TAT:	120 Hour	Qty:	2
Acct St	<u>s:</u>	SIsprsn: epodel	I	Logged:	jwyattpescador	Date:	9/23/08
<u>Billingf</u>	Frequency: With Rep	oort		Sample Condition:			•
					Comments		
🗆 Exem	npt from prep charge						. 1 1 .
☐ Exem	npt from lab opening f	ee		Prepped:	<u> Tup</u>	<u>Date:</u> .	<u>10 [10]08</u>
Exem	npt from layer/aliquot	charges		Analyzed:	esn/	<u>Date:</u> .	w/28/0V
				Data Entry		Date:	<u> १० ३० १० ४</u>
				Screened:	TP	Date:	10/20/08
Special	Instructions Preha	-good Levien	CX 1/19/09	Mailed:		Date:	
Order ID	Lab Sample #	# Cust. Sar	mple# L	_ocation		Due Date	

39 oh

40 pL

270800931

270800931

270800931-0001

270800931-0002

9/28/2008 1:45:00 PM

9/28/2008 1:45:00 PM

Indirect Preparation Record

TEM Air

TEM Dust

TEM ISO PCM

(Circle One)

		Indirect w	ithout ashIng		Dilution Filtra	tion					Indirect w	ith Ashing		
Prepped by: Order ID	Date:	Fraction of filter used	1st Resuspend Volume mL	Volume applied to filter mL	Volume of 1st Resuspend used mL	2nd Re- suspend Volume	Volume applied to filter	Volume of 2nd Re- suspend used	3rd Re- suspend Volume	Volume applied to filter	Fraction of filter ashed	Volume used to resuspend residue	Volume applied to 2nd fliter	OK to Prep to Grid?
				IIIL,	1111	mL_	mL	mL	mL	mL,		mL_	mL	Y/N
270800931	39										0.5	100	10	
													15	
											_		25_	
		_											50	y
	40					_	_				0.5	100	10	
			<u> </u>						_	_			15	y
													25_	
													50	
	116I											100	100	4
	Ab											100	100	Y
	Mb2											100	100	4
	_													
					52									
				/	Strif	10/10/2	2							
						72	2							
														_
	d Document													

SAMPLE ID

PARAMETERS

Status EPA Sample Number Overloaded 39

Effective filter area 385.0 mm2

Indirect factor

1.00E+00

QA Type

Not QA

Number of Grid Openings (amphibole)

0

s/cc

s/cc

Lab Sample Number

270800931-0001

Number of Grid Openings (chrysotile) ۵

Sample Type Category

Air Field Grid opening area 0.0130 mm2

Ргер

Volume (L) or Area (cm2) 792 L

Counting Rules

Direct 10312 Sensitivity (amphibole) Sensitivity (chrysotile)

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
0.0024	39	50

COUNTS (based on countable structures only)

			31		
Bin	LA	OA	С	PCME(all)	PCME(asb)
a	0	0	0		
b	0	0	0		
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		

Check Grand total OK 0

ŌΚ OK

CONCENTRATION (s/cc)

Bin	LA	OA	Ç	PCME(all)	PCME(asb)
a	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
b	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
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Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<≃.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME:	39 27080	00931-0001	ISO 01	-00-00 D	ds	璺	
				1100110			••

FILE TYPE: Original

Recording Rules:

	Recording Rules:						
≥ 3:1		~	Minimum Aspect Ratio	0.0			
	0.50		Minimum Length (um)				
none		ıe	Minimum Width (um)	3			

Stopping Rules:

Stopping Kules.							
0.0024	Target Sensitivity						
16	Target Sensitivity GOs required to reach target sensitivity						
39	Maximum # of GOs						
50	Maximum # of Structure						

Estimated # of GOs

BNSF 2008 Libby Site Investigation v32h TEM Asbestos Structure Count

Laboratory name:	EMSL27		
Instrument	JEOL 100 CX II (49)		
Voitage (KV)	100 kV		
Magnification	19,000 X		
Grid opening area (mm2)	0.0130		
Scale: 1L =	1.000		
Scale: 1D =	1.000		
Primary filter area (mm2)	385.0		
Secondary Filter Area (mm2)	360.0		
Category	Fleid		
Filter Status	Overloaded -		

EPA Sample Number:	39		
Sample Type	Air	•	
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	792	_	
Date received by lab	9/23/20	800	
Lab Job Number:	270800	931	
Lab Sample Number:	27080093	1-0001	
Number of grids prepared			
Prepared by			
Preparation date			
EPA COC Number	0931		

Direct	•
No	•
ISO (Air or Dust)	•
Westmon	nt
e par elemba	
Not QA	•
	ISO (Air or Dust) Westmor

F-factor Calculation: Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

٧

COMMENTS overloaded

39_270800931-0001_ISO_01-00-00_D.xls

EPA SAMPLE ID: LAB SAMPLE ID: 39 270800931;0001 Sample Type Airi
Count Rule 10312

Prep Direct

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/29/2008

QA by: QA date: T. Peters 10/30/2008

Grid	Grid	Structure	No. of S	tructures	Dimens	ions (a)	Identification		Mineral C	lass (b)			1 = ye	s, blank	= no	Fract. GO
Gila	Opening	Туре	Primary	Total	Length	Width	Idefilification	LA	_ OA	С	NAM	Comments	Sketch	Photo	EDS	Chrys.

SAMPLE ID

Status

Analyzed 39

10312

QA Type Not QA Lab Sample Number 270800931-0001

Sample Type Air Category Field

Prep Counting Rules

EPA Sample Number

PARAMETERS

Effective filter area Indirect factor

Indirect factor 2.50E-01

Number of Grid Openings (amphibole) 39

Number of Grid Openings (chrysotile) 39

Grid opening area 0.0130 mm2

Volume (L) or Area (cm2) 792 L Sensitivity (amphibole) 3.59E-03 s/cc

Sensitivity (chrysotile)

3.59E-03 s/cc

360.0 mm2

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Indirect - Ashed

Stopping Rules:

Target S	Max GOs	Max N
0.0024	39	50

COUNTS (based on countable structures only)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	0	0	0		
b	0	0	0		
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		_

Check OK OK Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
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С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
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Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			< 5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С	_	>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME:	39.270800931-000.11ISOL.10-28-08 IA XIS
	BNSF 2008 Libby Site Investigation v32h

FILE TYPE: Original

Recording Rules:

Stooning Rules:

recording reales.			Otoppilly r	tules.
≥ 3:1	•	Minimum Aspect Ratio	0,000,	Target Sensitivity
0.5	0	Minimum Length (um)		GOs required to reach target sensitivity
non	ie _	Minimum Width (um)	39	Maximum # of GOs
			50	Maximum # of Structur

Estimated # of GOs

TEM Asbestos Structure Count

Laboratory name: EMSL27				
Instrument JEOL 100 CX (49)				
Voltage (KV) 100 kV				
Magnification 19,000 X				
Grid opening area (mm2) 0.0130				
Scale: 1L =	1.000			
Scale: 1D =	1.000			
Primary filter area (mm2)	rea (mm2) 385.0			
Secondary Filter Area (mm2) 360.0				
Category Field				
Filter Status	Analyzed .			

COMMENTS

EPA Sample Number:	39	
Sample Type	Alr	•
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	792.6)
Date received by lab	9/23/20	800
Lab Job Number:	270800	931
Lab Sample Number:	27080093	1-0001
Number of grids prepared	5	
Prepared by	E.Wya Pescad	
Preparation date	10/10/2	800
EPA COC Number	0931	

	_		
Analyzed by	R. Pescador		
Analysis date	10/28/2008		
Prep	Indirect - Ashed		
loose material or debris in the	No 🔻		
Counting rules	ISO (Air or Dust)		
Grid storage location	2708-EMR-49, J		
Archive filter(s) storage location	Westmont		
Enter the appropriate data in the cells calculate the F-factor >>>>	to the right to		
F- factor	0.25		
QA Type Not QA			

F-factor Calculation:

Indirect Prep Inputs											
0.5	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]										
100	First resuspension volume or rinsate volume (mL)										

Volume applied to secondary filter (mL) or used for senal

Inputs for Serial Dilutions

dilution

puts ioi	Jenai Bilations
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for seria dilution

Input for Ashing	of Secondary Filter

Fraction of	of second:	arv filter	need for	r sehind
I Laction C		ary micer	03C0 10	i asimi

Grid openin	g traverse	direction:

EPA SAMPLE ID: LAB SAMPLE ID:

39 270800931-0001 Sample Type Count Rule 10312

Prep Indirect Ashed

QA Type Not QA

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/29/2008 QA by: T. Peters
QA date: 10/30/200

Data Ent	try date:		10/29/200	3			QA date:		008							
Maximu	um # of Grid Openings Reached-Complete current			GO then stop												
Grid	Grid	Structure			Dimens	ions (a)	Identification	Mineral Class (b)					1 = yes, blank = no			Fract. GO
	Opening	Туре	Primary	Total	Length	Width		LA	OA_	С	NAM	Comments	Sketch	Photo	EDS	Chrys.
1	F1			在工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工					金属業権の				基金器	海		ない。
1	F3	ND						装置器	THE STATE OF THE	實際				養養養	建工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工	藍蓋蓋羅
1	F5	7,10												連		
1	F7													三型基本型		
1	F9	_ ND								海田村						
1	E2	ND														
1	<u>E</u> 4	ND				NILL MARKET									左右	
1	E6	ND							棚船縣							
1	E8	ΝD							開開開開							
1	E10	ND						新聞船開課								言語
1	B1	ND														
1	B3	ND_							I IAHARRA INHBI							
1	B5	.,,_				MINISTRA MARKET										BINITES NO.
1	B7	_ ND						THE STREET		NAME OF						
1	B9	ND	WATER THE STATE OF													
1	A2	ND_														
1	A4	ND							HILLERING							
1	A6	ND								MINIMAL PROPERTY.						
1	A8									WALKERS.						
1	A10								SANTEMENTAL SECTION OF THE COLUMN TO SECTION O							
2	B9	_ ND														
2	B7				HATTANIA TATALAN AND AND AND AND AND AND AND AND AND A	TOTAL CONTRACTOR OF THE STATE O				HEREIDEREN HEREIDEREN	HARRICHENN Die Germannen					
2 2	D9	ND DN	HILHUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU	HAMANAMATANAMANAMANAMANAMANAMANAMANAMANAM		TORRESHUMBERINEN TORRESHUMBERINEN			S (PEONSHERIFICATIAN A HUURUGU OO SEEL							
2	D7	ND ND	ITAD PANHAKAN KANTAN KA	ISHEMIYARAKAN KANCANSI IMBAKKAN MAHADAHA	THANK BECKER HERE	ANALAGORANASTA TIDUMANTESANULUTE		THE HOTELSHIPS COLUMN TO THE TABLE OF TABLE OF TABLE O	19484488994698 19484488994698		LECTURINAL SERVICE SER					
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2	1	ND	
2	J2	ND	

HERTHINSHER .

PARAMETERS

Status EPA Sample Number Overloaded 40 Effective filter area 385

385.0 mm2

QA Type

Not QA

Indirect factor 1.00E

1.00E+00 0

Lab Sample Number

270800931-0002

Number of Grid Openings (amphibole) Number of Grid Openings (chrysotile)

0 0.0130 mm2

Sample Type

SAMPLE ID

Air Field Grid opening area Volume (L) or Area (cm2)

918 L

Category Prep Field Direct

Volume (L) or Area (cm2) Sensitivity (amphibole)

s/cc

Counting Rules

10312

Sensitivity (chrysotile)

s/cc

Recording Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
0.0024	39	50

COUNTS (based on countable structures only)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	0	0	0		
b	0	0	0		
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0_		
Total	0	0	0	0	0
Check	OK	OK	OK		

Check OK OK Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	С	PCME(ali)	PCME(asb)
а	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
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Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5	_	>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

40_270800931-0002_ISO_D.xls

10/30/2008, 12:55 PM

SM

FILE NAME: 40-270800931-0002 (ISO 01-00-00) D:xis

FILE TYPE: Original

Recording Rules:

Stopping Rules:

14

110001	41111	11007	<u> </u>
≥ 3:1	•	Minimum Aspect Ratio	
0,5	0	Minimum Length (um)	
nor	ie	Minimum Width (um)	

Target Sensitivity . 0.0024 GOs required to reach target sensitivity Maximum # of GOs 50 Maximum # of Structure

Estimated # of GOs

F-factor Calculation:

Indirect Prep inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	E
Instrument	JEOL 100 CX II (49)	S
Voltage (KV)	100 kV	(4)
Magnification	19,000 X	C
Grid opening area (mm2)	0.0130	L
Scale: 1L =	1.000	
Scale: 1D =	1.000	١
Primary filter area (mm2)	385.0	F
Secondary Filter Area (mm2)	380.0	F
Category	Field	E
Filter Status	Overloaded	

	_	
EPA Sample Number:	40	
Sample Type	Air	•
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	918	
Date received by lab	9/23/20	800
Lab Job Number:	270800	931
Lab Sample Number:	27080093	1-0002
Number of grids prepared		
Prepared by		
Preparation date		
EPA COC Number	0931	1

Analyzed by			
Analysis date			
Prep	Direct	•	
in sample type – air, is mere loose material or debris in the cowl?	No	•	
Counting rules	ISO (Alr or Dust)	•	
Grid storage location			
Archive filter(s) storage location	Westmont		
file a verterynters per ni Neisews Rai Vig Nova i November (e dig gra		
F- factor			
QA Type	Not QA	-	
		_	

COMMENTS

overloaded

40_270800931-0002_ISO_01-00-00_D.xls

EPA SAMPLE ID: LAB SAMPLE ID: 2708009310002

Sample Type Count Rule 10312 Prep Direct

QA Type Not QA

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/29/2008 QA by: T. Peters
QA date: 10/30/2008

0-:4	Grid	Structure	No. of \$	tructures	Dimens	ions (a)	Identification		Mineral C	lass (b)			1 = ye	s, blank	= по	Fract. GO
Grid	Opening	Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Comments	Sketch	Photo	EDS	Chrys.

1.03E-02 s/cc

BNSF 2008 Libby Site Investigation v32h TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Counting Rules

PARAMETERS

Sensitivity (chrysotile)

Status	Analyzed	Effective filter area	360.0 mm2
EPA Sample Number	40	Indirect factor	7.50E-02
QA Type	Not QA	Number of Grid Openings (amphibole)	39
Lab Sample Number	270800931-0002	Number of Grid Openings (chrysotile)	39
Sample Type	Air	Grid opening area	0.0130 mm2
Category	Field	Volume (L) or Area (cm2)	918 L
Prep	Indirect - Ashed	Sensitivity (amphibole)	1.03E-02 s/cc

Recording	Min. AR	Min length (um)	Min width (um)	Stopping	Target S	Max GOs	Max N
Rules:	≥ 3:1	0.5	none	Rules:	0.0024	39	50

COUNTS (based on countable structures only)

10312

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	0	0	0		
b	0	0	0		
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		

Check OK OK OK Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	С	PCME(all)	PCME(asb)
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Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С	-	>.5	>= 5
	đ	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

40 270800931-0002 ISO 10-28-08 IA.xls

FILE NAME: 40 270800931-0002 SO 10 28 08 A.XIS

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27	
Instrument	JEOL 100 CX II (49)	
Voltage (KV) 100 kV		
Magnification	19,000	X
Grid opening area (mm2) 0.0130		0
Scale: 1L = 1.000)
cale: 1D = 1.000		
Primary filter area (mm2)	385.0	
Secondary Filter Area (mm2)	360,0	
Category	Field	•
Filter Status	Analyzed	•

COMMENTS

EPA Sample Number: 40		
Sample Type	Alr	•
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	918	
Date received by lab 9/23/200		80
Lab Job Number: 2708009		931
Lab Sample Number:	b Sample Number: 270800931-0	
Number of grids prepared	5	
Prepared by	E.Wya Pescad	
Preparation date	10/10/2008	
EPA COC Number 0931		

Analyzed by	R. Pescador		
Analysis date	10/28/2008		
Prep	Indirect - Ashed		
If sample type = air, is there loose material or debris in the cowl?	No 🔻		
Counting rules	ISO (Air or Dust)		
Grid storage location	2708-EMR-49, I		
Archive filter(s) storage location	Westmont		
Enter the appropriate data in the cells calculate the F-factor >>>>	to the right to		
F- factor	0.075		
QA Type	Not QA		

Recording Rules:

Recording Rules.					
≥ 3:1		Minimum Aspect Ratio	-		
0.50		Minimum Length (um)			
none		Minimum Width (um)	Г		

Stopping Rules:

0.0024 168 39	Target Sensitivity . GOs required to reach target sensitivity Maximum # of GOs
50	Maximum # of Structure
39	Estimated # of GOs

F-factor Calculation:

		_	
Indi	rect	Pren	Input

0.5	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
100	First resuspension volume or rinsate volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

IIIputa IOI	Serial Dilottoria
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filler (mL) or used for serial

Input for Ashing of Secondary Filter

Fraction of secondary filter	used	for	ashing
------------------------------	------	-----	--------

Grid opening traverse direction:	

EPA SAMPLE ID: LAB SAMPLE ID:

NO SECULIA SECULIA DE LA CONTRACTOR DE L 270800931-0002

Sample Type Air Count Rule 10312

Prep Indirect Ashed QA Type Not QA

ERROR CHECK OK - No errors found

Data Entry by:

L. Ramowski

QA by: T. Peters

Data En			L. Ramow				QA by.	1. Peters				-				
Data Ent	try date:		10/29/200			mumananananan	QA date:	10/30/2008		J						
Maximu	m#ofGri	d Opening	s Reache	d-Complet	e current l	GO then s	top.									
Grid	Grid	Structure	No. of S	tructures	Dimens	ions (a)	Identification		Mineral C	lass (b)			1 = ye	s, blank :	<u> no</u>	Fract. GO
Gild	Opening	Туре	Primary	Total	Length	Width	Identification	LA	OA	С	NAM	Comments	Sketch	Photo	EDS	Chrys.
1	H6	ND		被被称称的	被推翻推翻					THE STATE OF						
1	H8	ND				組織機構								網網網票		
1	H10	ND			網票機器		羅斯斯斯斯斯斯							羅蓋蓋		
1	F3	ND				松灰紅 水水 水水 水水 水水 水水 水水 水水 水水 水水 水水 水水 水水 水水			羅馬馬馬				調整調		概觀關聯	
1	F5	ND		藍翼翼翼	塞羅羅羅爾	羅羅羅羅	建基業需要要	蓋蓋蓋羅			養養養			囊		新編編製 版
1	F7	ND	攤攤攤攤	羅蓋羅羅羅	建鐵鐵羅		藍ൣ	主要基础等	藍羅蓋	ない。	産業を			蘿		
1	E4	ND	金工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工	機器機能器	整整器	華麗麗夢	建工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工	高雪雪路					塞羅羅羅	基理語	棚棚棚	
1	E6	ND	表達問製架票	監整監護	基務網票	建型工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工		雪雪雪雪	開開開	強				離離		
1	E8	ND	数据费益	重素器器	蓋蓋器器	選出機工業	海臨鮮港海岸地		開機關						罐罐罐	
1	E10	ND									機調機					個個個個個
_ 1	D2	ND	藍雞雞	整整整體	養量養養					翻器数						
1	D4	ND	建基金基基基	實工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工	全型型工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工	基金工作		an in in in in the in in in in in in in in in in in in in		要は			鐵鐵鐵鐵			
1	D6	ND			開始開始											
1	D8_	ND		推翻整理						I MINIMINE						福斯斯斯斯斯斯
1_	D10	ND		們關聯聯關						機關機				推翻推		
1	C3	ND		雪雞	藍露葉具											
1	C5		塞塞雲	船鮒棚棚	蓋馬震震											
1	C7_	ND	经基金工程								MANAMAN					
11	C9	ND	質量	紫紫紫紫		新洲新期	建設工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工			震器型	MAN MAN					
2	G10	ND	翻翻翻翻													
2	G8	ND				建工程器			数値差		開業課				Militan	
2	G6	ND_			腦點實		西鎮藍土									
2	<u>G4</u>	ND		調整												
2	G2	ND				素が単独数					A HARRISTON OF THE REAL PROPERTY.					
3	C9	ND								A PRINCIPAL OF THE PRIN	Linking					
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3	F3	ND	。
3	F1	ND	

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	1 .
Scale: 1D =	1
Primary fitter area (mm2)	385
Secondary Fifter Area (mm2)	340
Category (Fleid, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Type

Grid

Grid Opening

39
A
792
9/23/08
270800931
270800931-0001
0.2

Identification

Analyzed by	
Analysis date	
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	D
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISQ
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interiab)	Not QA
·	

F-Factor Calculation (Indirect Preps Only);

Sketch/ Comments

Enter data in appropriate cells provided to the right--->

Sketch

Recording Rules:		
Minimum Aspect Ratio (cli	rcle one):	١.
none ≥3:1	£5:3	Rica Idad
Minimum Length (um):	0.5	, 4 - 1,
Minimum Width (um):	None	

Stopping Rules:		
Target Sensitivity:	0.0024 -0.005	Rian Iologia
Max # of GOs:	-40-89	101 -10
Target # of Structures:	50	

F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs
Fraction of primary filter used for indirect prep or ashing
[For dust end dustfell, enter 1.0]
First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for S	Serial Dilutions
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to aecondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for ashing

LA = Libby	-type amphibo	le	OA = Oth	er (non-L

No. of Structures

Total

Primary

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

OVERLOADEL

C = Chrysotlle

Mineral Class (see below)

С

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse dire	ction (circle one
----------------------------	-------------------

H Horizontal

V Vertical

Are prepped grids acceptable for analysis?	(circle one)	Yes	No
if No. explain:			

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	SET
Secondary Filter Area (mm2)	360
Category (Fleid, Rep., Dup., Blank)	Field
Primary filter pore size (um)	0.8

Structure

Туре

ND

40 UD

ND

M

MD

W

ND

NO

NO

No. of Structures

Total

Primary

EPA Sample Number:	39
Sample Type (A=Air, D=Dust, DF = Dustfali):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	792
Date received by lab	9/23/08
Lab Job Number:	270800931
Lab Sample Number:	270800931-0001
Number of grids prepared	5
Prepared by	E. Wyatt-Pescador
Preparation date	10/10/08
EPA COC Number:	
Secondary filter pore size (um)	0.2

Identification

R. Pescador 10/ 28 /2008 I A
ıA
No
<u> </u>
ISO
2708-EMR-49, J
Westmont
Not QA
_

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right--->

Sketch

(circle one);
1) ≥ 5:1
0.5
None

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	39
Target # of Structures:	50

F-factor Calculation:

Indirect Prep Inputs

0.5	Frection of primary filter used for indirect prep or ashing [For dust and dustfell, enter 1.0]
100	First resuspension volume or rinsate volume (ml.)
50	Volume applied to secondary filter (ml.) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)
Volume applied to secondary filter (mL) or used for sartal dilution
Third resuspension volums (mL)
Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Frection of secondary filter used for

LA = Libby-type amphibole

Grid

Grid Opening

F3

FO

EZ E4

86

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotlie

Mineral Class (see below)

С

NAM

QΑ

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one):
H Horizontal

H Horizoni Vertical Are prepped grids acceptable for analysis? (circle one) If No, explain:

Fract.

GO

Chrys.



LAB NAME EMSL27

LAB SAMPLE NO. 270800931-0001

EPA SAMPLE NO. 39
SAMPLE TYPE A

QA TYPE Not QA LAB JOB NUMBER 270800931 .

GRID STORAGE LOC. 2708-EMR-49, J

																Fract.
Grid	Grid Opening	Structure Type	No. of Str	uctures_	ctures Dimensions Identification Mineral Class		Dimensions Identification			1 = yes, blank = no			GO			
<u> </u>	Opering	1,000	Primary	Total	Length	Width		LA	OA	С	NAM	Sketch/Comments	Sketch	Photo	EDS	Chrys.
	B)	ND														
	B3	No														
	B5-	ND														
	37	ND														
	BY	ND														
	A2	NO														
	A4	ND														
	Ab	ND							<u>-</u>							
	A8	ND											_			
	Alø	ND														
d.	Bo	No														
1	<i>B</i> 7	ND														_
	D9	ND														
	27	ND														
	D5	NO														

LAB NAME <u>EMSL27</u>
LAB SAMPLE NO. 270800931-0001

EPA SAMPLE NO.

SAMPLE TYPE

39 A QA TYPE Not QA LAB JOB NUMBER 270800931
GRID STORAGE LOC. 2708-EMR-49, J

Grid	Grid	Structure	No. of Str	o. of Structures Dimensions Identification Mineral Class					1 = ve	es, blank	= no	Fract,				
Grid	Opening	Туре	Primary	Total	Length	Width	identification	_ LA	_OA	С	NAM	Sketch/Comments	Sketch	Photo	EDS	Chrys.
2_	D3	ND														
	וס	ND	:													
	F4	ND														
	F2	NP_														
	GT	ND			:											
	63	NÞ		_												
	Gı	ND														
	146	NO														
	Hy	W)														
	HZ	ND														
	IZ	NO	!						:	:						
	I 3	ND														
	II	ND														
	12	ND														
+	-	R	aff words	y .												

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D=	1
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Fleid
Primary fifter pore size (um)	0,8

Structure

Туре

No. of Structures

Total

Primary

EPA Sample Number:	40
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	918
Date received by lab	9/23/08
Lab Job Number:	270800931
Lab Sample Number:	270800931-0002
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	
Secondary filter pore size (um)	0.2

Identification

Analyzed by	
Analysis date	
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	Đ
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right--->

Sketch

Recording Rules:		
Minkmum Aspect Ratio (cin	cle one):	Ţ
none ≥ 3:	5	R/29/1
Minimum Length (um):	0.5	10/29/1
Minimum Width (um):	None	
-	<u>.</u>	

topping Rules: arget Sensitivity:	0.0024 - 9.003	RKn
ax#of GOs:	1939	RKA 10/24/19
arget # of Structures:	50	

F-factor	Calcul	noite:

Fract.

GO

Chrys.

Indirect Prep Inputs

	Fraction of primary filter used for Indirect prep or ashing [For dust and dustfall, enfer 1.0]
	First resuspension volume or rinsat volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondery filter used for

LA = Llbby-type amphibole

Grid

Grld Opening

OA = Other (non-Libby type) amphibole

Dimensions

Wldth

Length

OVERLOADED

C = Chrysotlle

Mineral Class (see below)

С

NAM

QΑ

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis? (circle one) Yes No if No, explain:

 -		

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	D.013
Scale: 1L =	1
Scale: 1D =	1
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	360
Category (Field, Rep., Dup., Blank)	Fleld
Primary filter pore size (um)	0.8

Structure

Type

ND ND

ND

ND NP No. of Structures

Total

Primary

EPA Sample Number:	40
Sample Type (A=Air, D=Dust, DF = Dustfall):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	918
Date received by lab	9/23/08
Lab Job Number:	270800931
Lab Sample Number:	270800931-0002
Number of grids preparad	5
Prepared by	E. Wyatt-Pescador
Preparation date	10/10/08
EPA COC Number:	
Secondary filter pore size (um)	0.2

Identification

LA

Analyzed by	R. Pescador
Analysis date	10/ 28/2008
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	1Å
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules . (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-49, K
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recount Same, Recount Different, Re-prep, Verified Analysis, Reconciliation, Lab Blank, Interlab)	Not QA
	I

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right--->

Sketch

Recording Rules:	
Minimum Aspect Ratio (cl	rcle one):
none ≥3:1	≥ 5:1
Minimum Length (um):	0.5
Minimum Width (um):	None

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	39
Target # of Structures:	50

F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

0.5	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsativolume (mL)
	Volume applied to secondary filter

Inputs for Serial Dilutions

Second resuspension volume (mL
Volume applied to secondary filter (ml.) or used for serial dilution
Third resuspension volume (mt.)
Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter Fraction of secondary filter used for ashing

ND 20

LA = Libby-type amphibole

Grid

Grld Opening

116

HØ HIO

F3

FS

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

C

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traversa direction (circle one):

Horizontal

Vertical

Are prepped grids acceptable for analysis? (circle one) (Yes) No If No, explain:



LAB NAME <u>EMSL27</u>
LAB SAMPLE NO. 270800931-0002

EPA SAMPLE NO. 40
SAMPLE TYPE A

QA TYPE Not QA LAB JOB NUMBER 270800931

GRID STORAGE LOC. 2708-EMR-49, K

	044	S=			T							-	DOTORA			Fract.
Grid	Grid Opening	Structure Type	No. of Str		1 7	nsions	Identification			Class			1	es, blank		GO Chrys.
	1	1	Primary	Totai_	Length	Width	<u> </u>	LA	OA	С	NAM	Sketch/Comments	Sketch	Photo	EDS	Ctilys.
1	n	ND										_				
	at	ND														
	06	ND									•					
	98	ND														
	שוט	ND														
	C3	ND														
	4	MD														
	C 7	ND														
4	C9	ND														
2	610	ND														
	G8	No														
	G6	NO														
	G4	ND														
4	G2	NO														
3	co)	ND										_				

LAB NAME <u>EMSL27</u>
LAB SAMPLE NO. 270800931-0002

EPA SAMPLE NO. 40
SAMPLE TYPE A

LAB JOB NUMBER <u>270800931</u>

GRID STORAGE LOC. <u>2708-EMR-49, K</u>

Grid	Grid	Structure	No. of Str	uctures	Dime	ensions	Identification		Minera	ıl Class			1 = v	es, blank	= no	Fract.
- Grid	Opening	Туре	Primary	Total	Length	Width	Identification	LA	OA	С_	NAM	Sketch/Comments	Sketch		EDS	GO Chrys.
3	לס	ND														
]	D5	NO										_				
	D3	ND														
	DI	ND														
	£10	ND														
	દક	ND														
	26	ND														
	६५	ND _														
	82	NO														
	F9	NO			_		_									
	* 7	NP														
	F5	ND			_											
	F3	ND														
	F1	Nb														
		best	10/28/10													

EMSL Analytical, Inc.

Asbestos

CHAIN OF CUSTODY Revised January 1, 2000

ORDER ID#. 270800931

EMSL Rep:						_				
Your Company Nar	me:	EMSL Analytical,	Inc.	Bill to:		Emp	Inc			
Street:		107 4th Street We	est	Street:	_	Cak	t carm		_	
Box #:										
City/State:		Libby, MT	Zip: 59923	City/State:	_	Delut	h, N	Zip:		
Phone Results to:	Name:	Scott C	-cu-ha	Fax Results to:	Name:					
Telephone #:				Fax #:	-				_	
Project Name/Numl	ber:			Purchase Order	- #:			-	_	
•		MATRIX			_	TURNA	ROUND			
Air	□ Soil		☐ Micro-Vac	□ 3 hrs	□ 6 Нош		Same Day or 12 Hours*	☐ 24 Hours (1 day)		
□ Bulk	☐ Drink	ing Water		☐ 48 Hours (2 days)	☐ 72 Hoi (3 day		□ 96 Hours (4 days)	40 120 Hours (5 Days)		
☐ Wipe	☐ Waste	water		☐ 144+ hours (6		3)	(4 days)	(C Days)	_	
form for this service. *12 hours (must arrive b		l ahead to schedule. There ion - Fri.), Please Refer to		tat; please call 1-800-220-3675	i for price prior t			to sign an anthorization	:	
PCM - Air NIOSH 7400(A) Icens 2: A	Juguet 1004	TEM Air	0 CFR, Part 763 Subpar	rr F	H	CM Water EPA 100.1			
OSHA w/ TWA	•	tugust 1994		102 Issue 2		H	EPA 100.2			
Other:	_		EPA Leve			□	NYS 198.2			
			进 ISO							
PLM - Bulk			TEM Bulk	. (0 11 11)			M Microvac/Wij			
☐ EPA 600/R-93/☐ EPA Point Cou				nt (Qualitative) SOP – 1988-02			ASTM D 5755-9 Wipe Qualitative			
NYS Stratified		nt	=	(Gravimetric) NYS 19	8.4	Ь	wipe Quantative	•		
PLM NOB (Gra				ndard Addition		XI	<u>ന</u>			
☐ NIOSH 9002							Asbestos			
☐ EMSL Standard	d Addition		PLM Soil				Silica NIOSH 75	600		
SEM Air or Bulk			EPA Proto	col Qualitative						
Qualitative				col Quantitative		<u>07</u>	THER .			
☐ Quantitative			∐ EMSL MS	D 9000 Method fibers/gra	AIT)	⊔				
Client Sample # (s)						Total S	amples #:			
Relinguished;				Date:	<u> 2/3</u>	108	Time:	1245		
Received:	_	RM	esear N	Date:	9/2	3/08	Time:	1345		
Relingish	ed:	sthet (). Watt-pes	cador DATE.			TIME:	15.23		
Recewed	s l	S. Barnos	espi Ems	ac Dade	15/10	₹/∞9	Q:06.	•		

Asbestos

ORDER ID# 270800931

CHAIN OF CUSTODY Revised January 1, 2000

EMSL

SAMPLE NUMBER		SAMPLE DESCRIPTIO	N/LOCATION	VOLUME (If Applicable)
39	9/23/08	OCHA	mile Marke 13	752
40	9/23/08		mle Marke 13	752
			X	
			·	

25 LBS

1 OF 1

JOMAY WYATT-PESCADOR 406-293-9066 EMSL ANALYTICAL, INC. 107 WEST 4TH STREET LIBBY MT 59923

SHIP TO:

CHARLES LACERRA 856-858-4800 1253 EMSL ANALYTICAL, INC. 107 HADDON AVENUE

WESTMONT NJ 08108-2711



NJ 081 9-06



UPS GROUND

TRACKING #: 1Z Y84 048 03 9398 9125



BILLING: P/P





INTERNAL CHAIN OF CUSTODY

9/25/2008 2:42:03 PM

Attn:	Scott Carney			Customer ID:	EMRI78
	EMR, Inc.			Customer PO:	
	11 East Superior Street Suite 260 Duluth, MN 55802			Received:	09/25/08 1:21 PM
Fax:	(218) 625-2337	Phone:	(218) 625-2332	EMSL Order:	270800943
Project:	Samples collected 9/24/20	80		EMSL Proj ID:	BNSF Libby, MT 2008
				O	

Order ID: 270800943

Invoice to Burlington N. Santa Fe/BNSF Rlwy (BURL54), 2500 Lou Menk Drive, Fort Worth, TX 76131

Test:	TEM ISO 10312	<u>Matrix</u>	Air	TAT:	120 Hour	Qty:	2
Acct S	Sts: gFrequency: With R	<u>Sisprsn:</u> epode eport	II	Logged: Sample Condition:	jwyattpescador V Acceptable Unacceptable	<u>Date:</u>	9/25/00
□ Exe	empt from prep charge empt from lab opening empt from layer/alique	j fee		Prepped: Analyzed: Data Entry	Comments LJUY PHI TR	<u>Date:</u> _ <u>Date:</u> _ Date: _	10/10/08 10/24/48 10/24/08 10/20/08
Specia	al Instructions Preh	ard copy review	UK 1/19/09	Screened: Mailed:	a	Date: _	126/09
Order I	D Lab Sample	# Cust Sa	mple#	ocation		Due Date	

Order ID	Lab Sample #	Cust. Sample #	Location	Due Date
270800943	270800943-0001	470m		9/30/2008 1:21:00 PM
270800943	270800943-0002	48		9/30/2008 1:21:00 PM

Indirect Preparation Record

TEM Air



(Circle One)

(Circle										_			_	
		Indirect w	ithout ashing		Dilution Filtra	tion					Indirect w	ith Ashing		
Prepped by:	Date:	Fraction of filter	1st Resuspend	Volume applied to	Volume of 1st Resuspend	2nd Re- suspend	Volume applied to	Volume of 2nd Re- suspend	3rd Re- suspend	Volume applied to	Fraction of fliter	Volume used to resuspend	Volume appiled to	OK to Prep to
1			Volume	filter	used	Volume	filter	used	Volume	fliter	ashed	residue	2nd filter	Grid?
Order ID	Sample #		mL	mL	mL	mL	mL	mL	mL	mL		mL	mL	Y/N
270800943	47							_			0.5	100	10	
													15	
													25	y
										_			50	
	mb											100	100	4
	A\o											100	100	4
													_	
											<u>. </u>			
		ļ						<u> </u>	<u> </u>					
						STUP,	1/10/00				. –		_	
		<u> </u>					10/00							
				İ										
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								_						
			_			_				, ,				

Controlled Document

Confidential Business Information/Property of EMSL Analytical, INC.

SAMPLE ID

Status

Overloaded

Effective filter area

385.0 mm2

EPA Sample Number

47

Indirect factor

PARAMETERS

1.00E+00

QA Type

Not QA

Number of Grid Openings (amphibole)

0

Lab Sample Number

270800943-0001

Number of Grid Openings (chrysotile)

0 0.0130 mm2

Sample Type Category

Air Field Grid opening area

964 L

Prep

Direct

Volume (L) or Area (cm2) Sensitivity (amphibole)

s/cc

Counting Rules

10312

Sensitivity (chrysotile)

s/cc

Recordina Rules:

Min. AR	Min length (um)	Min width (um)
≥ 3:1	0.5	none

Stopping Rules:

Target S	Max GOs	Max N
0.0024	39	50

COUNTS (based on countable structures only)

Bin	LA	OA	С	PCME(all)	PCME(asb)
a	0	0	0		
ь	0	0	0		
С	0	0	o		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		

Check Grand total OK 0

OK ΟK

CONCENTRATION (s/cc)

Bin	LA	OA	C	PCME(all)	PCME(asb)
а	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
b	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	а			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME:	47_270800943	0001 IS	O 01-0	0 00 D	xis	
------------	--------------	---------	--------	--------	-----	--

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL	27			
Instrument	JEOL 100 ((49)				
Voltage (KV)	100 kV				
Magnification	19,000 X				
Grid opening area (mm2)	0.0130				
Scale: 1L =	1.000				
Scale: 1D =	1.000)			
Primary filter area (mm2)	385.0)			
Secondary Filter Area (mm2)	360.0				
Category	Fleid				
Filter Status	Overloaded 🔻				

EPA Sample Number:	47				
Sample Type	Air	•			
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	964.0)			
Date received by lab	9/25/20	800			
Lab Job Number.	270800943				
Lab Sample Number:	27080094	270800943-000°			
Number of grids prepared					
Prepared by					
Preparation date					
EPA COC Number	0943	3			

Analyzed by		
Analysis date		
Prep	Direct	~
loose material or debris in the	No	~
Counting rules	ISO (Air or Dust)	•
Grid storage location		
Archive filter(s) storage location	Westmon	ŧ
The graph of the graph of the second control of the control of the graph of the gra	restricted to	
F- factor		
QA Type	Not QA	•

Recording Rules:

Stopping Rules:

	≥ 3:1	•	Minimum Aspect Ratio	4.00-	Target Sensitivity -
0.50		0	Minimum Length (um)	13	GOs required to reach target sensitivity
	none		Minimum Width (um)	39	Maximum # of GOs
				50	Maximum # of Structure
	F-fact	or C	alculation:	13	Estimated # of GOs

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing

F-factor

Grid opening traverse direction:

V

COMMENTS

overloaded

EPA SAMPLE ID: LAB SAMPLE ID: 270800943-0001

Sample Type Air 10312

Prep Direct

QA Type Not QA

ERROR CHECK
OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/29/2008 QA by: T. Peters
QA date: 10/30/2008

Grid	Grid	Structure	No. of S	tructures	Dimens	ions (a)	Identification		Mineral C	lass (b)			1 = ye	s, blank	= no	Fract. GO
Gild	Opening	Туре	Primary	Total	Length	Width	definition	LA	QA_	С	NAM	Comments	Sketch	Photo	EDS	Chrys.

Versi

360.0 mm2

39

39

0.0130 mm2

1.25E-01

BNSF 2008 Libby Site Investigation v32h TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Status

QA Type

Analyzed

47

Not QA

270800943-0001 Lab Sample Number Аіг

Sample Type Category Prep

Rules:

EPA Sample Number

Field Indirect - Ashed

10312 Counting Rules

PARAMETERS

Effective filter area Indirect factor Number of Grid Openings (amphibole)

Number of Grid Openings (chrysotile) Grid opening area

Volume (L) or Area (cm2) 964 L Sensitivity (amphibole) 5.89E-03 s/cc Sensitivity (chrysotile) 5.89E-03 s/cc

Recording Min. AR Min length (um) Min width (um) ≥ 3:1 0.5

Stopping Rules:

Target S Max GOs Max N 0.0024 39 50

COUNTS (based on countable structures only)

Bin	LA	OA	C	PCME(all)	PCME(asb)
а	0	0	0		
ь	0	0	0		
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0

none

OK

Check OK OK Grand total 0 OK

CONCENTRATION (s/cc)

Bin	L,A	OA	С	PCME(all)	PCME(asb)
а	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
b	<dl< td=""><td><dl< td=""><td><dl< td=""><td>ł</td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td>ł</td><td></td></dl<></td></dl<>	<dl< td=""><td>ł</td><td></td></dl<>	ł	
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	đ	>=.5 to < 5	<=.5	>= 5
	e	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME:	47	27080094	3-0001 IS	O 10-28-08	IA X	s	里放	336

FILE TYPE: Original

BNSF 2008 Libby Site Investigation v32h

TEM Asbestos Structure Count

Laboratory name:	EMSL27			
Instrument JEOL 100 C) (49)				
Voltage (KV) 100 kV				
Magnification 19,000 X				
Grid opening area (mm2)	0.0130			
Scale: 1L =	1.000			
Scale: 1D = 1.000				
Primary filter area (mm2)	385.0			
Secondary Filter Area (mm2)	360.0			
Category	Field			
Filter Status	Analyzed			

EPA Sample Number:	· 47	
Sample Type	Air	•
Air volume (L), dust sample area (cm2), or dustfall container area (cm2)	964.0)
Date received by lab	9/25/20	800
Lab Job Number:	270800	943
Lab Sample Number:	27080094	3-000
Number of grids prepared	3	
Prepared by	E.Wya Pesca	
Preparation date	10/10/2	800
EPA COC Number	0943	3

Analyzed by	R. Pescador		
Analysis date	10/28/2008		
Prep	Indirect - Ashed		
If sample type – an, is there loose material or debris in the	No		
Counting rules	ISO (Air or Dust)		
Grid storage location	2708-EMR-49, H		
Archive filter(s) storage location	Westmont		
Enter the appropriate data in the cells calculate the F-factor >>>>	to the right to		
F- factor	0.125		
QA Type	Not QA		

Recording Rules:

≥ 3:1 ▼ Minimum Aspect Ratio 0.50 Minimum Length (um)

Stopping Rules:

1	0.0024 96	Target Sensitivity - GOs required to reach target sensitivity
	39	Maximum # of GOs
	50	Maximum # of Structure
	39	Estimated # of GOs

F-factor Calculation:

none Minimum Width (um)

Indirect Prep Inputs

0.5	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
100	First resuspension volume or rinsate volume (mL)
25	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

mpaco ioi	OCITAL DINGLOTIS
	Second resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution
	Third resuspension volume (mL)
	Volume applied to secondary filter (mL) or used for serial dilution

Input for Ashing of Secondary Filter

Fraction of secondary filter used for ashing



Crid	onening	traverse	direction:
الادام	operang	naverse	un ection.

V

COMMENTS

EPA SAMPLE ID: LAB SAMPLE ID: 47 270800943-0001 Sample Type Air Count Rule 10312

QA by:

Prep Indirect Ashed

QA Type Not QA

ERROR CHECK

OK - No errors found

Data Entry by: Data Entry date: L. Ramowski 10/29/2008 T. Peters 10/30/2008

Data Ent	try date:	HIII WAN HAN TON BAN	10/29/200		_	CITIES BUSALIEUS IN SOCI	QA date:	10/30/20	<u>800</u>						
Maximu			s Reache	d-Complet	e current (GO then s	top.								
Grid	Grid	Structure	No. of S	Structures_	Dimens	ions (a)	Identification		Mineral	Class (b)			1 = yes	blank = no	Fract. GO
	Opening	Туре	Primary	Total	Length	Width	Identification	ĹA	OA	С	NAM	Comments	Sketch	Photo EDS	Chrys.
1	J2	ND	器器 器器 に い	金素質の異素に	差型素素素	差異難語	紫金墨羅羅藍	医基金属			塞塞黑				
1	J4	ND		生素素素		建	建業企業工業工業工業工業工業工業工業工業工業工業工業工業工業工業工業工業工業工業		機能機能	編集器型					
1	J6		医基础性					害毒素					主義基準		
1	J8	ND		建工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工							要無器は				
1	11	ND								全型	当の主義を				
1	13	ND_				藍羅鸛				羅羅羅羅					
1_	15	ND	州湖州州城				建工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工				棚棚業				
1	<u>1</u> 7			開網網網開		雪雪雪雪					雅渊鄉				
1	19	ND					海網網網網								
1	H2	ND_						差差		震響響					
1	H4_									棚棚棚					
1	<u>H6</u>		を 素質を 素質を に の の の の の の の の の の の の の					旗髓制御			柳陽				
_ 1	H8	ND					建工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工	機能開業	機能機能						
1	E6_	ND													
1	E8	ND													
11	E10			排機器 關					湖州湖						
1	C8	ND					加斯斯斯斯斯斯斯	医系属性	MINIME						
1	C10_					なる。	語書表表								
2	J2_		建工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工				大変ない。				新州福報				
2	J4			學學學學			はままれば、			4 開始開	Hannah				
2	J6			素質素を変え											
2	J8			建期阻抑制制											
2_	J10														
2	11	ND		器無害											
2	13	ND	ままる 日本 日本 日本 日本 日本 日本 日本 日本 日本 日本 日本 日本 日本 												
2	15	ND_													
2	17	ND													
2	19	ND							MIERRE			ALBERTALINA SERVENINI DELA LOCATION DE LA COMPUNIDA DE LA COMPUNIDA DE LA COMPUNIDA DE LA COMPUNIDA DE LA COMP			
2	H2	ND					福度的								
2	H4														
2	H6														
2	H8	ND													
2	H10											EMUTICAL STATEMENT OF STATEMENT			
2	G1	ND		語の複数を表											
2	G3	ND	養養素養					建工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工	三				A HESSAN PURSUL		

385.0 mm2

967 L

1.00E+00

BNSF 2008 Libby Site Investigation v32h TEM Asbestos Structure Count -- ISO 10312

SAMPLE ID

Counting Rules

PARAMETERS

Status Analyzed Effective filter area
EPA Sample Number 48 Indirect factor
QA Type Not QA Number of Grid Op
Lab Sample Number 270800943-0002 Number of Grid Op

Number of Grid Openings (amphibole) 13
Number of Grid Openings (chrysotile) 13
Grid opening area 0.0130 mm2

Sample TypeAirGrid opening area0CategoryFieldVolume (L) or Area (cm2)PrepDirectSensitivity (amphibole)2.36

Sensitivity (amphibole) 2.36E-03 s/cc Sensitivity (chrysotile) 2.36E-03 s/cc

Recording
Rules:Min. ARMin length (um)Min width (um)≥ 3:10.5none

10312

 Stopping
 Target S
 Max GOs
 Max N

 Rules:
 0.0024
 13
 50

COUNTS (based on countable structures only)

Bin	LA.	OA	C	PCME(all)	PCME(asb)
а	0	0	0		
b	0	0	0		
С	0	0	0		
d	0	0	0		
е	0	0	0		
f	0	0	0		
Total	0	0	0	0	0
Check	OK	OK	OK		

Check OK OK Grand total 0 OK

CONCENTRATION (s/cc)

Bin	LA	OA	С	PCME(all)	PCME(asb)
а	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
b	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
С	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
d	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
е	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
f	<dl< td=""><td><dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td></td><td></td></dl<></td></dl<>	<dl< td=""><td></td><td></td></dl<>		
Total	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""><td><dl< td=""></dl<></td></dl<></td></dl<>	<dl< td=""><td><dl< td=""></dl<></td></dl<>	<dl< td=""></dl<>

Туре	Bin	Length	Width	Aspect ratio
LA = Libby-type amphibole	a			<5
OA = Other amphibole	b	<.5		>= 5
C = Chrysotile	С		>.5	>= 5
	d	>=.5 to < 5	<=.5	>= 5
	е	5 to 10	<=.5	>= 5
	f	>10	<=.5	>= 5

PCME: Length > 5 um, Width >= 0.25 um, Aspect Ratio >= 3:1

FILE NAME: 48_270800943-0002 ISO 10-28-08_D.xls BNSF 2008 Libby Site Investigation v32h

Analyzed

FILE TYPE: Original

•

Recording Rules:

≥ 3:1	Minimum Aspect Ratio
0.50	Minimum Length (um)
none	Minimum Width (um)

Stopping Rules:

Stopping reacts.								
0.0024 13	Target Sensitivity . GOs required to reach target sensitivity							
13	Maximum # of GOs							
50	Maximum # of Structure							
13	Estimated # of GOs							

F-factor Calculation:

Indirect Prep Inputs

Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]

First resuspension volume or rinsate volume (mL)

Volume applied to secondary filter (mL) or used for serial

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial

Input for Ashing of Secondary Filter

Fraction	of	secondary	filter	used	for	ashing

F-factor

Grid opening traverse direction:

Laboratory name: EMSL27 EPA Sample Number: JEOL 100 CX II Instrument Sample Type Αſτ (49)Air volume (L), dust sample area (cm2), or dustfall container area Voltage (KV) 100 kV (cm2) Magnification 19,000 X Date received by lab Grid opening area (mm2) 0.0130 Lab Job Number: Scale: 1L = 1.000 Lab Sample Number: Scale: 1D = 1.000 Number of grids prepared Primary filter area (mm2) 385.0 Prepared by Secondary Filter Area (mm2) 360.0 Preparation date EPA COC Number Fleid

	Analyzed by	R. Pescador							
1	Analysis date	10/28/2008							
	Prep Direct								
	loose material or debris in the	No	•						
	Counting rules	ISO (Air or Dust)	•						
2	Grid storage location	2708-EMR-49, H							
	Archive filter(s) storage location	Westmont							
	र विकास है करते पुरुष विवेश मुख्यों के करते हैं। करते हैं इसके पुरुष करते हैं है है है है है कि अधिकार	i #a igipik							
	F- factor								
	QA Туре	Not QA	•						

COMMENTS

Category

Filter Status

270800943

270800943-0002 3

TEM Asbestos Structure Count

E.Wyatt-

Pescador

10/10/2008 0943

48

967.0

9/25/2008

EPA SAMPLE ID: LAB SAMPLE ID:

48 270800943-0002

Sample Type Count Rule

10312

Prep Direct QA Type Not QA ERROR CHECK

OK - No errors found

L. Ramowski Data Entry by: Data Entry date: 10/29/2008

QA by: QA date: T. Peters 10/30/2008

Maximu	m#ofGri	dOpening	s Reache	d-Complet	ecurrent	GO then s	top.	<u>[</u>								
Grid	Grid	Structure	No. of S	No. of Structures		sions (a)	ns (a) Identification		Mineral C	Class (b)			1 = ye	s, blank	= no	Fract. GO
0.,,4	Opening	Туре	Primary	Total	Length	Width		LA	OA	С		Comments	Sketch	Photo	ED\$	Chrys.
1	F10	ND			建工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工						and and and and and and and and and and					
1	F8	ND	調響	塞羅羅羅	共和軍制制				機關關聯		瓣瓣					
1	F6	ND	生物工作		響響響響	はいません。	震響響響響									
1	F4															
1	F2	ND	共和語		機器機能			紫素素								
2	D10	ND	艦離離	なる。	協議調機就		蓋蓋鍵鍵盤									
2	D8	ND														
2	D6	ND													WARREN THE STATE OF THE STATE	
2	D4	ND	共和國		蝴舞舞		建設課課課業	建墨雪塘	登点を							
2	D2	ND		業工業	鑑騰調點			新語報語	温を裏							
3	F6	ND		書き	医三类类类	建基準票				雅麗期						漫畫編集
3	<u>F</u> 8	ND	響麗雪雪春				産業業業業業産業	雅器期間							珊瑚川	
3	F10	ND	建工程	密性なる意味を			建工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工工			翻點鄉			MARKAL HARDAS		HAMMIN	影響剛胖

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0,013
Scale: 1L =	1
Scale: 1D=	1
Primary filter area (mm2)	3&-
Secondary Filter Area (mm2)	360
Category (Fleld, Rep., Dup., Blank)	Fleid
Primary filter pore size (um)	0.8

EPA Sample Number:	47
Sample Type (A=Air, D=Dust, DF = Dustfail):	A
Air volume (L), dust area (cm2), or dustfall container area (cm2)	964
Date received by lab	9/25/08
Lab Job Number:	270800943
Lab Sample Number:	270800943-0001
Number of grids prepared	
Prepared by	
Preparation date	
EPA COC Number:	
Secondary filter pore size (um)	0.2

D
No
iso
Weatmont
Not QA

F-Factor Calculation (Indirect Preps Only):

Enter data in appropriate cells provided to the right--->

Recording Rules:		
Minimum Aspect Ratio (cli		
none (≥3:1)	3	Rtu 10/29/1/
Minimum Length (um):	0.5	10/29/8 ₂
Minimum Width (um):	None	

Stopping Rules; Target Sensitivity:	0.0024	Rfa
Max # of GOs:	39-18	10/24/08
Target # of Structures:	50]

Grid	Grid Opening	Structure	No. of Structures		Dime	enoian	Identification	Mineral Class (see below		w)	Sketch/ Comments	1 = yes, blank = no		= no	Fract. GO	F-factor Calculation:	
Gild	Grid Opening	Туре	Primary	Total	Length	Wldth	Identification	LA	OA	С	NAM	Sketchi Confinents	Sketch	Photo	EDS	Chrys.	Indirect Prep Inputs
		(WER.	LOA	PED												Fraction of primary filter used for indirect prep or ashing [For dust and dustfell, enter 1.0]
																	First resuspension volume or rinsate volume (mL)
														_			Volume applied to secondary filter (mL) or used for serial dilution
			_														Inputs for Serial Dilutions
																	Second resuspension volume (mL)
																	Volume applied to secondary filter (mL) or used for serial dilution
																	Third resuspension volume (mL)
																	Volume applied to secondary filter (mL)
																	input for Ashing of Secondary Filter
																	Fraction of secondary filter used for ashing

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotlle

NAM = Non-asbestos material

Grid opening traverse direction (circle one):

H Horizontal

V Vertical

Are prepped grids acceptable for analysis?	(circte one)	Yes	No
If No. evoluin:			

if No, explain:	
-----------------	--

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	_19,000 X
Grld opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	1
Primary filter area (mm2)	38/
Secondary Filter Area (mm2)	38V 360
Category (Fleid, Rep., Dup., Blank)	Fleid
Primary filter pore size (um)	0.8

Structure

Type

ND

ND

ND

ND

NO

ND

NP

No

No. of Structures

Total

Primary

EPA Sample Number:	47			
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α			
Air volume (L), dust area (cm2), or dustfall container area (cm2)	964			
Date received by lab	9/25/08			
Lab Job Number:	270800943			
Lab Sample Number:	2870800943-000			
Number of grids prepared	3			
Prepared by	E. Wyatt-Pescador			
Preparation date	10/10/08			
EPA COC Number:				
Secondary filter pore size (um)	0.2			

Identification

LA

Analyzed by	R. Pescador
Analysis date	10/28 /2008
Method (D=Direct, 1=Indirect, IA=Indirect, ashed)	
If sample type = air, is there loose material or debris in the cowl? (Yes, No)	No
Counting rules (ISO, AHERA, ASTM)	ISO
Grid storage location	2708-EMR-49, H
Archive filter(s) storage location	Westmont
QA Type (Not QA, Recourt Same, Recount Different, Re-prep, Verified Analysis, Reconcillation, Lab Blank, Interlab)	Not QA
. , , , , , , , , , , , , , , , , , , ,	

E-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right---->

Sketch

Recording Rules:						
Minimum Aspect Ratio (circle one):						
none (≥3:1)	≥ 5:1					
Minimum Length (um):	0.5					
Minimum Width (um):	None					

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	39
Target # of Structures:	50

F-factor Calculation:

Indirect Prep Inputs

0.5	Fraction of primary filter used for indirect prep or ashing [For dust and dustfall, enter 1.0]
	First resuspension volume or rinsat volume (mL)
25	Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Fifter
Fraction of secondary filter used for ashing

T9 ND H2 No

T3

ĬΪ

Grid

Grid Opening

J2

OA = Other (non-Libby type) amphibole

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

NAM

OA

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one):

H Horizontal



Vertical

Are prepped grids acceptable for analysis? (circle one) (if No, explain:

Fract.

GO

Chrys.



No

 LAB NAME
 EMSL27
 EPA SAMPLE NO.
 47
 QA TYPE
 LAB JOB NUMBER
 270800943

 LAB SAMPLE NO.
 2870800943-0001
 SAMPLE TYPE
 A
 Not QA
 GRID STORAGE LOC.
 2708-EMR-49, H

Grid	Grid	Structure	No. of Str	ructures	Dime	nsions	Identification	Mineral Class			_	1 = y	Fract.			
	Opening	Туре	Primary	Total	Length	Width	idelinication	LA_	OA	С	NAM	Sketch/Comments	Sketch		EDS	GO Chrys.
1	114	ND														
	Hb	No											,,			_
	48	ND	_					_								
	٤4	NP_														
	E8	N0														
	810	NO			_								_	_	-	
	<u>&</u>	ND											_	_		
	CIO	ND_		_	_											
2	12_	ND			_											
	14	ND														
	Jb	NO_														
	28	NO												_	•	
	710	ND														
	11	ND	_									_			·	
<u> </u>	13	No _														

LAB NAME <u>EMSL27</u>
LAB SAMPLE NO. 2870800943-000 I

EPA SAMPLE NO. 47
SAMPLE TYPE A

QA TYPE Not QA LAB JOB NUMBER 270800943

GRID STORAGE LOC. 2708-EMR-49, H

Grid	Grid	Structure	No. of Str	uctures	Dime	nsions	Identification		Mineral Class			1 = y	Fract. GO			
	Opening	Туре	Primary	Total_	Length	Width		LA	OA_	С_	NAM	Sketch/Comments	Sketch	Photo	EDS	Chrys.
2	<u> </u>	ND	_								_			_		
	I 7	No _											_			
	I9	WP			_											
	42	ND_			_											
	HU	NO	_								_			_	_	
	46	ND _						_	_				_			_
	lt8	NO													_	
	410	40		_					_		_				_	
	el	No						_			_		_	_		
	G3	ND								_			_			
	GS	No									_			_		
	G7 _	NO	_			_		_	_							
	G9	ND														
	FID	NO_							_						_	
		NAD 10/28	lox									_				

Laboratory name:	EMSL27
Instrument	JEOL 100 CX II (49)
Voltage (KV)	100
Magnification	19,000 X
Grid opening area (mm2)	0.013
Scale: 1L =	1
Scale: 1D =	11
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	385 360
Category (Field, Rep., Dup., Blank)	Fleid
Primary filter pore size (um)	0.8

Structure

Туре

ND

NO

ND

MP

NÛ

NΔ

ND

ND

NO

NΟ

No. of Structures

Total

Primary

EPA Sample Number:	48
Sample Type (A=Air, D=Dust, DF = Dustfall):	Α
Air volume (L), dust area (cm2), or dustfall container area (cm2)	967
Date received by lab	9/25/08
Lab Job Number:	270800943
Lab Sample Number:	2870800943-0002
Number of grids prepared	3
Prepared by	E. Wyatt-Pescador
Preparation date	10/10/08
EPA COC Number:	
Secondary filter pore size (um)	0.2

Identification

LA

ľ
R. Pescador
10/ 28/12008
No
ISO
2708-EMR-49, H
Westmont
Not QA

F-Factor Calculation (Indirect Preps Only):

Sketch/ Comments

Enter data in appropriate cells provided to the right--->

Sketch

Recording Rules:							
Minimum Aspect Ratio (circle one):							
none ≥3	≥ 5:1						
Minlmum Length (um)	0.5						
Minimum Width (um):	None						

Stopping Rules:	
Target Sensitivity:	0.0024
Max # of GOs:	13
Target # of Structures:	50

F-factor Calculation:

Fract.

GO

Chrys.

Indirect Prep Inputs

Frection of primary filter used for indirect prep or ashing
[For dust and dustfall, enter 1.0]
First resuspension volume or rinsate volume (ml.)

Volume applied to secondary filter (mL) or used for serial dilution

Inputs for Serial Dilutions

Second resuspension volume (mL)

Volume applied to secondary filter (mL) or used for serial dilution

Third resuspension volume (mL)

Volume applied to secondary filter (mL)

Input for Ashing of Secondary Filter
Fraction of secondary filter used for

LA = Libby-type amphibole

Grid

Grid Opening

FID

FQ

FU #U

FZ

DIO

DR

06

04

OA = Other (non-Libby type) amphibale

Dimensions

Width

Length

C = Chrysotile

Mineral Class (see below)

OA

С

NAM

NAM = Non-asbestos material

1 = yes, blank = no

Photo

EDS

Grid opening traverse direction (circle one):

H Horizontal

Vertical

Are prepped gride acceptable for enalysis? (circle one) If No, explain:



No

LAB NAME EMSL27 LAB SAMPLE NO. 2870800943-0002 EPA SAMPLE NO. SAMPLE TYPE

48 Α

QA TYPE Not QA

LAB JOB NUMBER GRID STORAGE LOC. 2708-EMR-49, H

270800943

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class				1 = yes, blank = no			Fract. GO	
			Primary_	Total	Length	Width	identification	LA	OA	С	NAM	Sketch/Comments	Sketch		EDS	Chrys.
3	Fy	ND							_							
	Eg	N ฏ			_										_	
	Flo	ND														
$\overline{\ \ }$								_	_				_			
		_					_							_		
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				_						ļ						



EMSL Analytical, Inc.

Asbestos

CHAIN OF CUSTODY Revised January 1, 2000

ORDER_ID# 270800943

EMSL Rep:							
Your Company Nat	me:	EMSL Analytical, I	nc.	Bill to:	En	R Ina	
Street: 107 4 th Street West			t	Street:	500	att Carne	
Box #:						7	
City/State: Libby, MT		Zip: 59923	City/State:	P	nluta, na	Zip:	
Phone Results to:	Name:	C. H		Fax Results to: No	ame:		
Telephone #:		Suff car		— Fax #:			
Project Name/Numi	ber:			Purchase Order #	<u></u> -	-	
		MATRIX		,		AROUND	
Air	□ Soil		☐ Micro-Vac	□ 3 hrs	□ 6 Hours	☐ Same Day or 12 Hours*	24 Hours
□ Bulk	□ Drinki	ng Water		☐ 48 Hours (2 days)	☐ 72 Hours (3 days)	☐ 96 Hours (4 days)	(2 120 Hours
□ Wipe	□ Waste	water		☐ 144+ hours (6-1		(4 days)	(5 Days)
form for this service.	urs, Please call	ahead to schedule. There l on - Fri.), Please Refer to P	s a premium charge for 3-hour tat; price Quote			mples. You will be asked	to sign an authorization
PCM - Air			TEM Air			TEM Water	
☐ NIOSH 7400(A ☐ OSHA w/ TWA		ugust 1994	☐ AHERA 40 C ☐ NIOSH 7402	FR, Part 763 Subpart	E	EPA 100.1	
Other:	`		☐ EPA Level II	issue z		☐ EPA 100.2 ☐ NYS 198.2	
			I Iso		,		
PLM - Bulk			TEM Bulk		,	TEM Microvac/Wij	
EPA 600/R-93/			☐ Drop Mount ((☐ Chatfield SOP		I	ASTM D 5755-9	•
NYS Stratified		t		~ 1988-02 avimetric) NYS 198.	.4	Wipe Qualitative	;
PLM NOB (Grav	vimetric) NY	S 198.1	EMSL Standar			XRD	
☐ NIOSH 9002					į	Asbestos	
☐ EMSL Standard SEM Air or Bulk	d Addition		PLM Soil EPA Protocol	Dualitativa	I	Siliea NIOSH 75	00
☐ Qualitative				-		OWNER	
Quantitative			EPA Protocol 6	200 Method fibers/gram		<u>other</u> □	
Client Sample # (s)					Tota	Samples #:	
Relinquished:			<u></u>	Date:	9/25/08	Time:	1351
Received:	K	Baines,	EMSL	Date:	9/25/08	Time:	1321
Relienzeished	· Ely	but D. No	jett- Placador /	EMSL DATE:	12/4/08	TIME:	1558
Received:	. 8.6	Parnowak Emsi Date: 12/19/08 Time 9:06					

EMSL Analytical, Inc.

Asbestos

ORDER ID# 270800943

CHAIN OF CUSTODY Revised January 1, 2000

SAMPLE NUMBER	SAMPLE NUMBER SAMPLE DESCRIPTION/LOCATION				
47	9/24/08	OSIHA	Milemarko 1729.5	964	
48	V		L	967	

JOMAY WYATT-PESCADOR 406-293-9066 EMSL ANALYTICAL, INC. 107 WEST 4TH STREET LIBBY MT 59923

25 LBS

1 OF 1

SHIP TO:

CHARLES LACERRA 856-858-4800 1253 EMSL ANALYTICAL, INC. 107 HADDON AVENUE

WESTMONT NJ 08108-2711



NJ 081 9-06

UPS GROUND

TRACKING #: 1Z Y84 048 03 9398 9125



BILLING: P/P

UJS 10.6.07.

WXP1270 84.0A 10/2008



I IV

